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ABSTRACT

Data on the characteristics, information needs, and information dissemination patterns of actual and potential users of educational information were gathered through field interviews with persons representing a variety of educational roles and geographical locations (Vol. I) as well as through a nationwide mail questionnaire survey (Vol. II). Questions for the study were generated from an Educational Information Use Model which hypothesized relationships between user characteristics, information needs, and information sources employed. Results indicate that while there are many differences among respondents for the variables analyzed, there are distinct patterns of information use related to personal style and type of educational position held. This study forms half of a larger study intended to provide guidance for decision making and planning at all levels in the United States Education Information Service complex. Appended are the mail survey sampling design and the mail survey instrument. (STS)

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THE EDUCATIONAL INFORMATION MARKET STUDY

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Prepared by:
Far West Laboratory for Educational Research and Development
1855 Folsom Street, San Francisco, California

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VOLUME I

KEY EDUCATIONAL INFORMATION USERS AND THEIR STYLES OF INFORMATION USE

Paul D. Hood
Laird Blackwell

Far West Laboratory for Educational
Research and Development

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FOREWORD

The study reported here was performed by the Far West Laboratory for Educational Research and Development as a subcontractor to the System Development Corporation under Contract Number NIE-C-74-0099 with the National Institute of Education, U.S. Department of Health, Education, and Welfare. Although led by the Far West Laboratory, the Educational Information Market Study was a joint effort involving staff of the System Development Corporation (SDC), Applied Communication Research (ACR), and the Far West Laboratory as contractors, and the staff and consultants of the Information and Communication Systems Division, Dissemination and Resources Group, of the National Institute of Education.

The field survey of key persons in education was designed and conducted primarily by Far West Laboratory staff; however, we need to acknowledge the advice and constructive criticism of the following persons:

SDC: Robert Katter, Karl Pearson, Jr., Cynthia Hull
ACR: Colin Mick, William Paisley, Matilda Butler-Paisley
NIE: Mollie MacAdams, Samuel Rosenfeld, Thomas Clemens, Charles Haughey, Charles Hoover, and Delmer Trester.

Among the several NIE consultants, we especially acknowledge the survey sampling and instrument development advice provided by Dr. Sam Sieber, and the assistance of Dr. Lyle Lanier, who aided us in gaining information concerning the needs of higher education audiences.

The Far West Laboratory team was led by Paul D. Hood. The field interview schedule was developed and piloted with the assistance of Barbara Havassy, Linda Sikorski, Nancy McCutchan, and Andrea Lash. Ms. Charlotte Coleman of the Survey Research Center, University of California at Berkeley, trained and supervised the field interviewers. Ms. McCutchan and Ms. Saundra Schaulis developed the field interview sampling procedures and arranged for and coordinated the field interviews. Field interviewers included: Charlotte Coleman, Paul Hood, Marilyn Madsen, Marie Paul, Linda Sikorski, and Gail Wrausmann. Coding, data processing, and report writing were done by Paul Hood and Laird Blackwell. The project administrative assistants were Mrs. Carol Burkhart and Mrs. Ursula Hoffman.

Finally, we need to acknowledge not only the cooperation of the 137 persons who gave an hour or more of their time for the interviews, but also the assistance of the scores of persons in state departments of education, local and intermediate educational agencies, professional associations, ERIC clearinghouses, and other agencies who assisted in identifying interview candidates.

ABSTRACT

The Educational Information Market Study was part of a larger study of educational information system requirements, sponsored by the National Institute of Education. The market study was concerned with defining the characteristics, needs, and purposes of educational audiences in terms of their actual or potential use of educational information.

This study was a two-stage effort. In stage one, field interviews were conducted with a purposely selected sample of 137 key persons, representing 18 different educational roles and located in over 40 communities throughout the U.S. Stage two involved a major, nationwide mail questionnaire survey. The intent of the field survey was: (1) to develop in-depth understanding of user information needs that could be employed to design the mail survey; (2) to develop and refine a conceptual framework and an analytic methodology; and (3) to develop qualitative information to clarify or illuminate data of the mail survey.

An Educational Information Use Model is presented which establishes relationships among several sets of variables, including: (1) organizational context, (2) position, (3) person, (4) information resources, (5) information sociometric variables, (6) purposes for seeking information, and (7) sources used/preferred.

The results indicate that there are many significant differences among audiences in their purposes for seeking information, the sources they use, the search strategies they employ, the results they obtain (success/difficulty), in what they do with the information they obtain, in their propensity to spontaneously provide obtained information to others, and in the numbers and types of persons who come to them for information. The field survey data analyses confirm the validity of the Educational Information Use Model and provide estimates of the patterns and strengths of variable relationships.

I. EXECUTIVE SUMMARY

A. INTRODUCTION

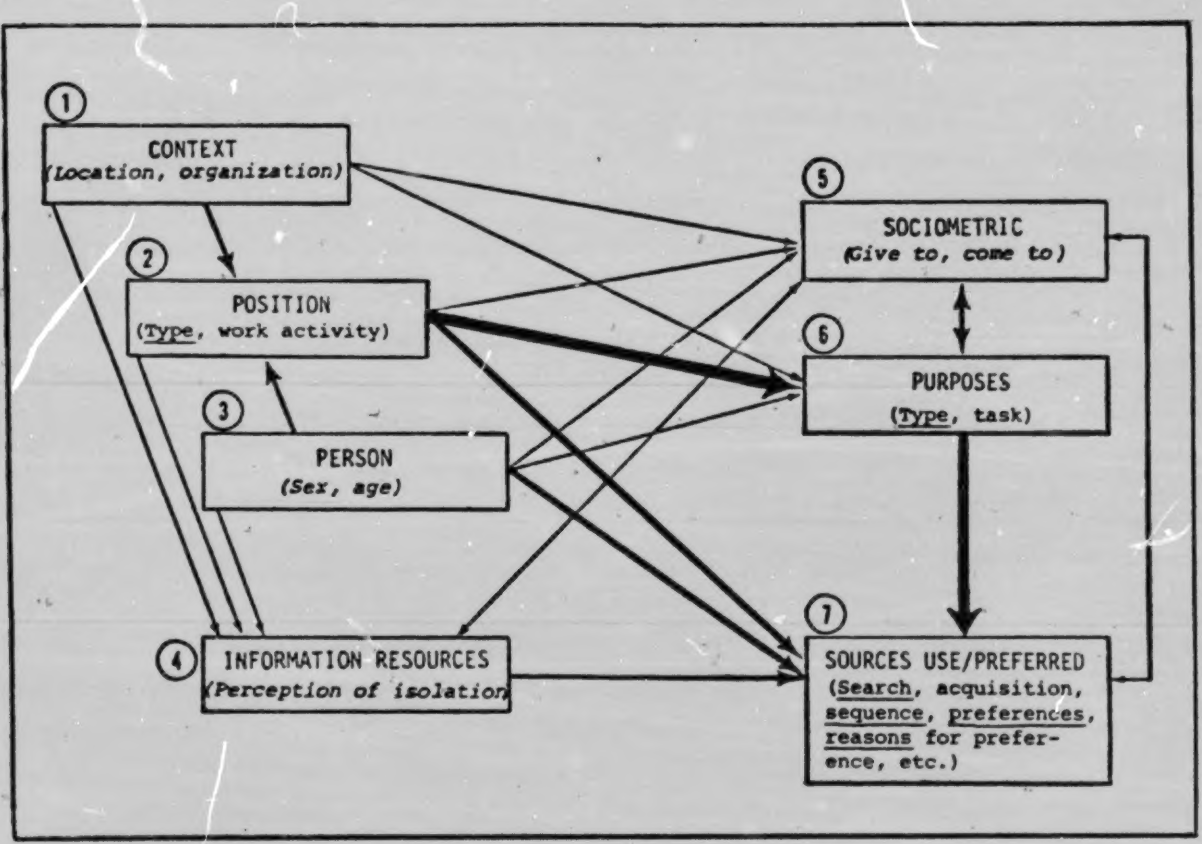
The Educational Information Market Study was part of a larger study of educational information system requirements, sponsored by the National Institute of Education, and undertaken by a project team consisting of the System Development Corporation, Applied Communication Research, Inc., and the Far West Laboratory for Educational Research and Development. The market study was concerned with defining the characteristics, needs, and purposes of educational audiences in terms of their actual or potential use of educational information.

The market study was a two-stage effort. In stage one, field interviews were conducted with a purposely selected sample of 137 key persons, representing 18 different educational roles, and located in over 40 communities throughout the United States. Stage two involved a major, nationwide mail questionnaire survey. The intent of the field survey was at least threefold: (1) to develop an indepth understanding of user information needs that could be employed to design the mail survey; (2) to develop and refine a conceptual framework and associated data analytic methodology to be employed in the data design and analysis of the mail survey; and (3) to develop qualitative information which might be used to clarify or illuminate the more limited and more structured data that would be obtained in the mail survey.

The field interview was designed to obtain information relevant to several sets of information user and information use variables which were of particular interest to this educational market study. The variable sets and their hypothesized relationships are indicated in Figure 1. From some points of view, position, purposes and sources form a "core" or "foundation" for understanding the nature of users' needs. The arrows connecting the three data types suggest a view of causal relationships; namely, that position will directly affect the users' purposes for seeking information and also the sources used. Moreover, purposes are also seen as having a significant predictive relationship on sources used. The arrows also indicate that context, person, information resources, and sociometric variables will be related to the position a person holds and will affect the

Figure 1. EDUCATION INFORMATION USE MODEL

Type of Variable (and Example Variables)
and Their Posited Relationships


① CONTEXT
(Location, organization)
② POSITION
(Type, work activity)
③ PERSON
(Sex, age)
④ INFORMATION RESOURCES
(Perception of isolation
⑤ SOCIOMETRIC
(Give to, come to)
⑥ PURPOSES
(Type, task)
⑦ SOURCES USE/PREFERRED
(Search, acquisition, sequence, preferences, reasons for preference, etc.)

purposes for which that person seeks information and the sources which are used to seek it. Although this seems to be obvious, we really have no good, quantitative idea about the strength, significance, number, or character of these causal relationships. If significant, meaningful patterns can be established, there would be at least a beginning basis for designing or redesigning information products and services (i.e., sources) in terms of needs (including purposes) of different classes of users.

B. INSTRUMENTATION AND ANALYSIS

The interview schedule consisted of questions relevant to all the types of variables in the Education Information Use Model (Figure 1). First, there were several questions which focused on the position and kind of work the interviewee performed. Then after a general question about information use, the respondent was presented with a list of 22 types of information sources (e.g., face-to-face discussions, textbooks and reference books, library facilities) and asked to rate those they used in terms of the ease/difficulty they experienced in obtaining the information they needed for each source. Next the respondent was presented with a deck of cards, each listing a type of purpose for seeking information (e.g., determining results of related work performed by others). After deleting cards listing purposes not relevant in the user's work in education, the user sorted the remaining relevant purposes into several categories of frequency of use. Next the user was asked to select the two purposes for which information was most frequently sought. Pointing to the first of these most frequent purpose items, the interviewer asked the respondent to scan the list of sources presented earlier and identify the first, second, and third source which the user would normally turn to in seeking information for this purpose. After identifying each source, the user was asked why this source was used. The interview continued with questions regarding the most important purposes, and why they were important, critical incidents involving success or failure in finding information, and amount of time and money spent in seeking information. Then, questions were asked relating to the number and professional level of people to whom the user communicates information (sociometric). Person data was provided by questions about age, sex, ethnicity, degree level, and months in job. Questions about perception of isolation and budget for information search provided data on information resources. Context data was provided by questions about organization type, educational level of job focus, and population density of the community in which the job is set.

Data from these questions were tabulated, ranked, and otherwise summarized. Factor analyses were used to describe the within variable set relationships among the source items and among the purpose items. Then, in order to investigate the relationship between the variable sets shown in Figure 1, three multivariate methods were employed: (1) canonical correlation analyses to examine the relationships between the sources and the other sets of variables; (2) regression analyses to determine the combination of user characteristic variables that can best predict the ease of sources used; and (3) multiple discriminant analyses to investigate differences in patterns of information use by different types of users.

C. RESULTS

The results indicate that there are many significant differences among education information subaudiences in their purposes for seeking information, the sources they use, the search strategies they employ, the results they obtain (success/ difficulty), in what they do with the information they obtain, in their propensity to spontaneously provide obtained information to others, and in the numbers and types of persons who come to them for information.

Although there are differences among subaudiences, the Education Information Use Model suggests that patterns of information use (needs, sources used, search strategies, outcomes) are multiply determined; and that information going beyond an audience typology may be employed effectively to identify and describe various education information "markets." The series of canonical correlation analyses amply demonstrates that context, position, person, and information resources are indeed related to sociometric and purpose variables and that all these sets of variables, taken one or more at a time, are significantly related to data concerning sources used/preferred.

Regression analyses indicate that ease of use of several, but not all, of the *sources* can be predicted to some extent by user characteristics. Although *organization/context*, *position*, *person*, *sociometric*, and *purposes* variables each contribute separately to the prediction of ease of use of sources; *purposes*, *organization/context*, and *position* show the strongest relationship to sources. These three types of variables, used together, correlate about .50 with the ease of using each of several *sources* of information. However, more than two-thirds of the *sources* (including "national information systems such as ERIC" and "abstracts, bibliographies, and indexes") are not predictable by user characteristics.

Regression analyses also indicate that the relatively easily obtainable information about age, sex, and geographic location has little relationship to ease of use of *sources*.

Hierarchical grouping and multiple discriminant analyses on the basis of similarities and differences in *purposes* and *sources* suggests that there are distinct patterns of information use that characterize people, and that the people who tend to use similar patterns are only sometimes in the same types of jobs or positions. Thus, patterns of *purposes* and *sources* may be as much personal styles as they are requirements or consequences of particular jobs or positions. Seemingly distinct patterns or profiles of *purposes* and *sources* are tentatively identified. In some cases, these patterns seem to clearly characterize an orientation toward information use (e.g., finding all "personal" sources easy to use and all "semi-formal" and "formal" sources difficult to use, or "providing information to others" being the only frequent purpose for seeking information). Although these findings of distinct patterns of information use that are only partially related to job type are extremely speculative at this point, they are interesting enough to warrant further investigation.

II. INTRODUCTION

A. BACKGROUND

The emergence of a major federal role in educational information systems and services parallels the earlier emergence of federal roles in science information, biomedical information, defense/space information, etc. However, the information systems and services in each of these fields have taken different operational forms. The Educational Resources Information Center (ERIC) component of the educational information system has passed its thirteenth anniversary, and is today the largest screened knowledge base about education in the world, including some 230,000 citations of technical and journal literature. ERIC can be seen to have evolved from a researcher's information system to a practitioner information system in response to needs for widely diffused knowledge that distinguish education from less applied scientific fields.

While ERIC is sometimes criticized and sometimes praised--for both the right and the wrong reasons--it is indispensible, and it is typical of most information systems now serving the sciences and professions. ERIC's design was based partly on precedent, partly on the collective experience of its designers as information users themselves, and partly on the state-of-the-art in both the information and the communication sciences at that time.

In more than thirteen years of operation, ERIC has helped to shape understanding among information scientists regarding the distinction between requirements for a scientific information system and a professional information system.

The market analysis of educational information service needs has been conceived by the Information and Communication Systems Division of the National Institute of Education as an antecedent to determining the specifications for developing an educational information system more responsive to the needs of educational information users.

Although the term "market analysis" may be new in the field of educational information services, the concept of determining user needs and behavior as an essential step in the specification of requirements for information and communication systems is well established. There is a 20-year tradition of research in this area, beginning with a 1952 study by Herner, Information Gathering Habits of Workers in Pure and Applied Science. Since that time, information needs research has extended into all branches of science and the professional disciplines, as may be seen by scanning, for example, the "Information Needs and Uses" chapters in successive volumes of the Annual Review of Information Science and Technology.

From the numerous studies, perhaps not directly related to education but relevant to this study, certain significant characteristics of information seeking habits may be drived.

- Information seeking behavior of engineers seemed to be programed possibly due to perceived cost of information seeking--McLaughlin, Rosenbloom, and Wolek (1965).
- Individual differences are closely related to perceived relevance on information seeking--Rees and Shultz (1967).
- Accessibility and ease of use correlate strongly with perceived utility of information. Accessibility and experience are also closely related to channel use. However, acceptance of information correlates highly with perceived technical quality, but not with accessibility or ease of use--Allen and Gerstberger (1967).
- Scientists tend to rely primarily on written sources, while technologists rely on oral sources--Allen (1966).
- Amount and diversity of information inputs and degree from a major institution predicts a great deal of the predictable variance in productivity measures--Paisley and Parker (1966).
- Degree of access to informal channels affects information seeking behavior--Allen et al. (1968).

- Spatial distance is a correlate of the probability of communication--O'Gara (1968).

- "Information style," a tendency to behave in certain patterns in relation to information seeking and use, seems to be relatively stable over long periods of time, but is definitely affected by changes in environment--Rubenstein et al. (1968).

In these studies and others, the information gathering profiles ("information style") of scientists and professionals show us a system in which informal, interpersonal channels are at least as significant as the formal channels whose responsiveness to changing information needs leaves much to be desired.

In the area of information use and communication in education, a number of studies, including those of Hood (1973); Dershimer (1970); Hood and McCutchan (1972); Chorness, Rittenhouse, and Heald (1968); McCracken (1970); Fry (1972); Hull and Wanger (1972); and Paisley (1972) have provided some insight into the information needs and habits of educational researchers and practitioners. In summary of these studies, it can be observed that:

- Both formal and informal communications systems are extremely diffuse and make it difficult for the educational researcher to obtain information.

- Most development and diffusion personnel rely on informal communication channels, since they are less print-oriented and the nature of their work typically requires reference to information in many fields. Also, much of the information they seek is either fugitive or very limited in distribution or access.

- Educational practitioners play many roles requiring different kinds of information.

- Practitioners feel they do not get the type and/or format of information that they need for planning, decision-making and implementation of new practices.

- Practitioners usually need information from a large data base and have little time to gather and use it. They are also frequently limited in formal training in information search and retrieval.

- The most frequently used and preferred information sources are colleagues and other informal contacts.

- When consulting formal information sources, practitioners most often use "how-to" types of materials and least often consult research-oriented documents.

- Difference in use patterns is related to educational roles.

- Practitioners most often use research-oriented literature to keep abreast in a field, for research projects, program improvement, course work assignments, and curriculum development.

- More than 60 percent of the estimated users of ERIC are undergraduate and graduate students.

Information and communication behavior is extremely complex and multiply determined. Previous research suggests that the educational information market can be "segmented" empirically into submarkets and that these submarkets can be associated with individual "information styles."

B. THE EDUCATIONAL INFORMATION MARKET STUDY FIELD SURVEY OF KEY PERSONS IN EDUCATION

Although there have been a number of studies of information needs of specific groups of educational information users (e.g., teachers, educational researchers), there has been no truly comprehensive, nationwide probability sampling survey of the information needs of all major types of users. Moreover, nearly all the existent surveys have confined their data analyses and reporting to relatively simple tabulations and cross-tabulations of item responses of the one or more types of positions held by respondents. Statistical analysis of differences among groups or relationships among variables has rarely been attempted.

The market study was a two-stage effort. In stage one, field interviews were conducted with a purposely selected sample of 137 key persons, representing 18 different educational roles, and located in over 40 communities throughout the U.S. Stage two called for a major, nationwide mail questionnaire survey. The intent of the field survey was at least threefold: (1) to develop an indepth understanding of user information needs that could be employed to design the mail survey; (2) to develop and refine a conceptual framework and associated data analytic methodology to be employed in the data design and analysis of the mail survey; and (3) to develop qualitative information which might be used to clarify or illuminate the more limited and more structured data that would be obtained in the mail survey.

The field interview covered a number of subject areas reflecting the Education Information Use Model depicted in Figure 1 on Page I-2. The conception of information used depicted in this figure suggests that specific job position may be the prime determinant (predictor) of purposes for which the user seeks information and also an important determinant of the sources used/preferred. Position is also conditioned by the organizational context (geographic location, population density, type of organization), and also by the biographic characteristics of the person occupying the position (age, sex, education, association memberships, years of experience, etc.).

Context, person, and position variables may all be predictive of purposes and of sources used/preferred. A fourth predictor set is information resources actually available. A fifth set of variables characterize the user sociometrically in terms of the users tending to pass on to others or to report that persons come to him/her for information. Sources used/preferred represent the main set of "dependent variables," which are of chief interest in this market study.

The interview schedule consisted of questions relevant to all the types of variables in the Education Information Use Model (Figure 1). First, there were several questions which focused on the position and kind of work the interviewee performed. Then, after a general question about information use, the respondent was presented with a list of 22 types of information sources (e.g., face-to-face discussions, textbooks and reference books, library facilities) and asked to rate those he/she used in terms of the ease/difficulty experienced in obtaining the information needed for each source. Next, the respondent was presented with a deck of cards, each listing a type of purpose for seeking information (e.g., determining results of related work performed by others). After deleting cards listing purposes not relevant in the user's work in education, the user sorted the remaining relevant purposes into several categories of frequency of use. Next the user was asked to select the two purposes for which information was most frequently sought. Pointing to the first of these most frequent purpose items, the interviewer asked the respondent to scan the list of sources presented earlier and identify the first, second, and third source which the user would normally turn to in seeking information for this purpose. After identifying each source, the user was asked why this source was used. The interview continued with questions regarding the most important purposes and why they were important, critical incidents involving success or failure in finding information, and amount of time and money spent in seeking information. Then, questions were asked relating to the number and professional level of people to whom the user communicates information (sociometric). Person data was provided by questions about age, sex, ethnicity, degree level, and months in job. Questions about perception of isolation and budget for information search provided data on information resources. Context data was provided by questions about organization type, educational level of job focus, and population density of the community in which the job is set.

Data from these questions were tabulated, ranked, and otherwise summarized. Factor analyses were used to describe the within variable set relationships among the source items and among the purpose items. Then, in order to investigate the relationship between the variable sets shown in Figure 1, three multivariate methods were employed: (1) canonical correlation analyses to examine the relationships between the sources and the other sets of variables; (2) regression analyses to determine the combination of user characteristic variables that can best predict the ease of sources used; and (3) multiple discriminant analyses to investigate differences in patterns of information use by different types of users.

This report will first describe procedures and results relevant to the separate sets of variables included in the Education Information Use Model (Figure 1). Then the results of the various multivariate statistical analyses investigating the relationships between these sets of variables will be presented and discussed.

Table 1. Planned and Actual Field Interview Sample

Type of Position	Planned Sample	Actual Sample
1. Practitioners	(34)	(33)
1.1 Teachers	12	12
1.2 Supervisors of Instruction	10	13
1.3 Principals	12	8
2. Administrators	(28)	(36)
2.1 School District Staff	12	12
2.2 Intermediate Unit Staff	5	7
2.3 State Education Agency Staff	11	7
2.4 State Education Agency Information Specialists	*	10
3. Governance	(24)	(28)
3.1 State School Board Members	6	6
3.2 Local School Board Members	10	9
3.3 State Legislators and Aides	5	9
3.4 U.S. Congressional Aides	3	4
4. Higher Education	(16)	(19)
4.1 Education Faculty	4	6
4.2 Social Scientists	4	4
4.3 Institutional Researchers	4	5
4.4 College Presidents	4	4
5. Special Interest	(23)	(21)
5.1 Minority Organization Representatives	10	9
5.2 Women's Organization Representatives	8	7
5.3 Information Center Staff	5	5
TOTAL	125	137

*State Education Agency Information Specialists were not a planned category, but one that emerged during the course of the field interviews.

III. CHARACTERISTICS OF THE VARIABLE SETS

A. CHARACTERISTICS OF THE SAMPLE

The field survey called for interviews with 125 persons distributed among five major types of information user audiences: practitioners; administrators; policy-makers; higher education personnel; and special interest groups. Each information audience was divided into three or more subaudiences, and the planned sample was distributed across these subaudiences on the basis of priorities established by NIE and the amount of prior knowledge about the information use/non-use patterns of each subaudience (see Table 1). Since the field survey was an exploratory study, the sample was designed to maximize variance. In identifying potential respondents several factors were considered. The central issue was to insure a range of responses that reflects the diversity of opinions, perceptions, and needs within the education community. Given practical constraints, it was more important to obtain some input from many locations in the spectrum of opinions and needs, including extreme points, than to attempt to create a statistically representative stratified sample (which would not be possible, given the small sample size). Five factors were explicitly considered in selecting specific respondents. These were: education subaudience; geographic location; sex; ethnicity; and degree of urbanization. Time and travel costs constrained the scheduling of interviews; however, interviews were conducted in 40 locations throughout the continental United States. As indicated in Table 1, the actual sample differs only slightly from the planned sample in terms of the allocation among subaudiences.

Table 2 presents a summary of several characteristics of the sample of key persons in the several education subaudiences. Overall, 35 percent of the sample is female and 17 percent is minority (3% American Indian; 2% Asian; 8% Black; 3% Hispanic; and 1% other). At least 20 percent of the sample comes from each of the four major census regions (20% North Atlantic; 26% Great Lakes and Plains; 20% South East; 33% West and South West). The sample is predominantly urban (78%), but includes 9 percent who work in suburban areas (more than 5,000 and less than 50,000 and within 25 miles of a city of 50,000 or more), 9 percent who work in towns of less than 50,000, 2 percent whose work location is in rural

Table 2. Distribution of Field Interview Sample: Type of Position by Sex, Minority, Region, Urbanization, Age, Seniority, Degree, and Membership

Type of Position	Nr.	Women	Minority	NA	GP	SE	SW	Pop. Dens.	Age	Years in		Degree Level	Nr.Prof.Asso.Mem.		
										Org.	Pos.		Nation	Region	Local
		%	%	%	%	%	%								
1. **Practitioners**															
1.1 Teachers	12	67	17	17	33	17	33	3.25	38	6.1	4.4	4.8	1.2	.8	.8
1.2 Supervisors of Instruction	13	31	00	00	31	08	61	3.69	49	13.3	5.3	6.2	2.1	1.2	.5
1.3 Principals	8	12	25	12	12	25	50	3.12	43	5.8	2.4	5.8	1.4	1.2	.6
2. **Administrators**															
2.1 School District Staff	12	17	25	25	25	17	33	3.83	45	7.5	4.4	6.5	2.3	.6	.1
2.2 Intermediate Unit Staff	7	43	14	15	14	00	71	4.00	45	4.8	2.6	5.7	1.6	1.2	.1
2.3 State Education Agency Staff	7	00	00	43	43	14	00	3.43	43	5.4	3.4	6.3	1.9	.7	.0
2.4 State Education Agency Information Specialists	10	20	10	20	10	50	20	4.00	48	8.5	6.1	5.9	1.6	.4	.0
3. **Policy Makers**															
3.1 State School Board Members	6	67	00	17	17	33	33	3.33	51	7.3	2.6	3.8	1.0	.2	.0
3.2 Local School Board Members	9	89	22	00	33	00	66	3.89	47	4.3	2.3	4.2	1.0	1.0	.1
3.3 State Legislators and Aids	9	33	11	11	22	56	11	3.77	35	3.1	1.6	4.8	.4	.3	.2
3.4 U.S. Congressional Aides	4	25	00	50	25	25	00	4.00	33	5.4	3.9	4.2	.0	.0	.5
4. **Higher Education**															
4.1 Education Faculty	6	00	00	17	00	50	33	4.00	49	13.2	8.0	7.0	4.2	.2	.0
4.2 Social Scientists	4	25	25	00	25	00	75	3.50	44	7.2	3.6	7.0	1.8	.2	.0
4.3 Institutional Researchers	5	00	00	00	40	20	40	3.20	42	6.9	3.2	6.6	.6	.2	.0
4.4 College Presidents	4	00	00	00	50	50	00	3.00	41	3.2	3.1	6.8	2.2	.0	.2
5. **Special Interest Groups**															
5.1 Minority Organization Representatives	9	22	100	22	56	11	11	3.78	41	3.5	1.7	5.2	.6	.0	.2
5.2 Women's Organization Representatives	7	100	00	57	29	00	14	3.86	46	1.7	1.7	5.7	.9	.6	.4
5.3 Information Center Staff	5	40	20	100	00	00	00	2.80	39	6.7	3.6	5.4	2.2	.8	.0
TOTAL	137	35	17	20	26	20	22	3.62	44	6.6	3.6	5.6	1.5	.6	.2

areas (5,000 population or less), and 2% unclassified. The four categories of population density were scored, 4, 3, 2, and 1 respectively, yielding an average of 3.62 for the total sample.

Although inclusion of women and minorities in the sample and representation of every region of the U.S. was attained for the total sample, these objectives were not met for every subaudience. Given the very small size of the subaudience samples and the limited number of locations visited, it was economically infeasible to schedule interviews in a way that would completely balance each subaudience on all factors. In the case of teachers, principals, school district staff, and state agency information staff there is a modest approximation to representation among all four census regions along with some representation of both women and minorities. However, other subaudiences are not as well represented. Among the more notable discrepancies are the following: aside from one social scientist, women are absent in the higher education subaudiences and among the SEA staff (except information staff). Minority persons are not represented among the supervisors of instruction, state school board members, U.S. Congressional aides, or women's organization representatives; and there is only one minority person among 19 persons in the higher education audiences. Several subaudiences are disproportionately drawn from the West and South West, including: supervisors of instruction; intermediate unit staff; local school board members; and social scientists. Conversely, this area has no representation among several subaudiences. The majority of the state legislators, half of the school of education faculty, and half of the college presidents are located in the South East. The majority of the minority organization representatives come from the Great Lakes and Plains region, while the majority of the women's representatives come from the North Atlantic region. Aside from this majority, and two of the four U.S. Congressional aides, the North Atlantic region is conspicuously underrepresented in many of the subaudiences.

The objective to include some nonurban respondents was also unevenly attained. In some cases it was impossible, e.g., all U.S. Congressional aides worked in Washington, D. C. (Population density average equals 4.0.) All the intermediate unit staff, SEA information staff, and the educational faculty also worked in urban areas. By contrast, moderate numbers of teachers, principals, state agency and school board members, institutional researchers, college presidents, and information center staff worked in nonurban areas as is indicated by the lower population density averages.

Because subaudience positions have proven to be significant predictors of purposes for seeking information and of sources used, it is important to stress these imbalances in sex, minority, and geographic representation among the subaudiences, because they may produce spurious correlations with other variables. For example, sex may be found to be significantly correlated with use of a particular information source when, in fact, the correlation may be attributable to differences among types of subaudiences in their use of this source, and sex appears to be correlated because of different proportions of male and female members in the various subaudiences. It must, therefore, be emphasized that significant correlations involving sex, minority status, or region must be treated with caution in making interpretations.

We next turn to an examination of some other characteristics of the persons in the sample which could conceivably have a bearing on information usage. The average age for the total sample is 44 years with a range from 33 years for U.S. Congressional aides (and 35 for state legislators and aides) to 51 for state school board members (and 49 for supervisors of instruction and education faculty).

Supervisors of instruction and education faculty have the greatest relative seniority with 13.3 and 13.2 years respectively in their present organizations. By contrast, the women's organization representatives have the shortest average time (1.7 years), followed by state legislators and aides (3.1 years) and college presidents (3.2 years). Overall the average time in the current organization is 6.6 years.

Average time in current position is slightly more than half as long (3.6 years). The short term positions are state legislators and aides (1.6 years) and minority and women's organization representatives (both 1.7 years). Longest in their current position are the school of education faculty (8.0 years), followed by state education agency information staff (6.1 years) and supervisors of instruction (5.3 years).

Degree level was scored on a scale as follows:

1 High School
2 Junior College
3 Bachelor's Degree
4 Bachelor's plus (includes credentials)
5 Master's Degree
6 Master's plus
7 Doctoral Degree

The average of 5.6 for the total sample thus suggests that the majority of the sample had at least a master's degree. All of the education faculty and all the social scientists had doctoral degrees, as did the majority of the other two higher education subaudiences. All the special interest groups scored over 5.0 (master's degree). The typical administrator has done substantial work beyond the master's degree; indeed at least half of the school district staff had their doctoral degree. Practitioners are just slightly lower. The majority of the teachers in the sample had received their master's degree. As a group, the policy-makers are least prone to have advanced degrees, but nearly all have at least a bachelor's degree. We thus see that this sample of key persons is predominantly a middle-aged, very well educated group.

We assumed that most of the key persons would belong to at least one professional educational association. In fact, the averages for the total sample indicate that they belonged to 1.5 national, 0.6 state or regional, and 0.2 local professional educational associations. The outstanding joiners of national educational associations are the education faculty with an average of 4.2 memberships. Subaudiences with an average of 2.0 or more include supervisors of instruction, school district staff, college presidents, and information center staff. Subaudiences with average memberships of less than 1.0 include state legislative aides (0.4), U.S. Congressional aides (none), institutional researchers (0.6), minority organization represantatives (0.6), and women's organization representatives (0.9).

As we can see by these membership averages, the several subaudiences differ widely in their access to educational information that may be provided by memberships in national educational associations.

While membership in one or more national educational associations is the rule, membership in state or regional and in local associations is less prevalent. Just half of the subaudiences have averages over 0.5 for state or regional memberships. The prominent joiners of state or regional educational associations are: supervisors of instruction; school principals; intermediate unit staff; and local school board members. Indeed, membership at this level is conspicuously associated with some relation to a local or intermediate educational agency.

Relatively few (less than 20%) of the sample belong to local educational associations. Membership in local associations is especially prominent among practitioners, and nearly absent among higher education and administrator audiences.

We note that one-way analysis of variance tests indicate that there are significant differences among the 18 subaudiences (types of positions) on all these variables: age, years in organization, degree level, and number of memberships at all three levels (national, state or regional, and local).

B. PURPOSES FOR SEEKING INFORMATION

1. FREQUENT PURPOSES

Each person was asked to sort a deck of cards, each card listing one purpose for seeking information, into several categories of frequency of use. The responses were scored as follows: the two purposes for which information is sorted "most frequent" = 5; other purposes sorted "most often" = 4; purposes sorted "next most often" = 3; purposes sorted "least often" = 2; purposes for which respondent does not seek information = 1.

Table 3 presents the items, rank ordered by rating means. Finding answers to specific questions related to work was, on the average, the most frequent purpose, followed by: providing information to others; developing alternative approaches to problems; keeping aware of developments in education; and acquiring ideas for work. Perhaps because classroom teachers constituted less than 10 percent of the sample, preparing or planning teaching/classroom materials was the least frequent of the 19 purposes.

A factor analysis of these data (see Table 4) suggests that the 19 purposes may be organized into eight major groups. (Note this analysis is based on 106 interviews.)

Factor I: Work-Related Vigilance. Five purposes (e.g., keeping aware of who is working in specific subjects or problem areas; determining results of related work performed by others; identifying new sources of assistance for improving my work in progress) load significantly on Factor I, which seems to involve information seeking for purposes of improving one's work.

Factor II: New Materials, Methods, Developments and Competencies. Factor II involves six purposes mainly concerned with keeping current. The purpose with highest loading is identifying new materials, methods, or procedures. Other purposes loading significantly on this factor are: learning a new specialty or competence, keeping aware of developments in education, keeping aware of developments in related fields, gaining theoretical information to support work in progress, and identifying new sources of assistance for improving my work.

Table 3. Purposes for Seeking Educational Information, Rank Ordered by Frequency Ratings (N = 136)

Rank	Rating Mean	Item #	Purpose
1	3.90	5	Find answers to specific questions related to my work
2	3.83	17	Provide information to others
3	3.62	3	Develop alternative approaches to problems
4	3.58	9	Keep aware of developments in education
5	3.57	1	Acquire ideas for my work
6	3.23	18	Make or set policy
7	3.22	6	Identify new materials, methods, or procedures
8	3.18	11	Identify new sources of assistance for improving my work
9	3.05	16	Prepare articles, reports, speeches, etc.
10	2.98	10	Keep aware of developments in related fields
11	2.90	7	Evaluate an educational practice or product
12	2.85	15	Make decisions about educational practice or products
13	2.71	2	Gain theoretical information to support work in progress
14	2.67	8	Keep aware of who is working in specific subject or problem areas
15	2.59	19	Support decisions already made
16	2.54	4	Determine results of related work performed by others
17	2.40	13	Learn a new specialty or competence
18	2.16	12	Brush up on an old specialty or competence
19	1.99	14	Prepare or plan teaching/classroom materials

Factors I and II share three items, but differ in the emphasis (in Factor I) on seeking information about results and awareness of who is working versus identifying new methods and materials (in Factor II).

Factor III: Evaluation and Decision-Making About New Products and Practices. Factor III involves three purposes: evaluating an educational practice or product, making decisions about educational practice or product, and keeping aware of developments in education. This group of purposes characterize users who are not only searching for new practices or products (as in Factor II) but also are concerned with evaluating their merit and making decisions about their use.

Factor IV: Policy-Making. Factor IV is primarily associated with the purpose of making or setting policy. Developing alternative approaches loads moderately on this factor; also loading to a smaller degree are: making decisions about educational practices or products and keeping aware of developments in related fields.

Factor V: Finding Answers, Supporting Decisions, and Developing Alternatives. Factor V is characterized by the very high loading for the purpose: finding answers to specific questions related to my work. Three other purposes show substantial loadings: supporting decisions already made, developing alternative approaches, and learning a new specialty or competence.

Factor VI: Scholarship. Five purposes show loadings above .30 on Factor VI. The three most prominent are: preparing articles, reports, speeches, etc.; gaining theoretical information to support my work in progress; and acquiring ideas for my work. Showing much smaller loadings are: keeping aware of developments in education and supporting decisions already made. These loadings suggest the theory and idea-oriented person who publishes or otherwise formally communicates findings and ideas.

Factor VII: Teaching and Competence Maintenance. Factor VII involves three purposes. Most prominent are: preparing or planning teaching/classroom materials and brushing up on an old competence or specialty, followed by acquiring ideas for my work.

Table 4. Factor Analysis of Frequency of Purposes for Which Users Seek Information (N = 106) (Decimals Omitted)

Item #	Purposes	Factors							
		I	II	III	IV	V	VI	VII	VIII
8	Keep aware of who is working in specific subject or problem areas	77							
4	Determine results of related work performed by others	76							
11	Identify new sources of assistance for improving my work	55	30						
10	Keep aware of developments in related fields	39	35		35				
6	Identify new materials, methods, or procedures		79						
13	Learn a new specialty or competence		55			34			
9	Keep aware of developments in education		55	55			34		
7	Evaluate an educational practice or product			84					
15	Make decisions about educational practices or products			65	36				
18	Make or set policy				86				
3	Develop alternative approaches to problems				55	47			
5	Find answers to specific questions related to my work					82			
19	Support decisions already made					49	33		
16	Prepare articles, reports, speeches, etc.						73		
2	Gain theoretical information to support work in progress	35	32				65		-32
1	Acquire ideas for my work						57	46	
12	Brush up on an old specialty or competence							76	
14	Prepare or plan teaching/classroom materials							79	
17	Provide information to others								88

Factor VIII: Providing Information to Others. Only two items load on this factor--item 17, providing information to others, and item 2, gaining theoretical information, which shows a small negative loading. The latter suggests that those providing information to others may not frequently seek theoretical information.

2. VITAL PURPOSES

Later in the interview, the respondent was again presented with the list of purposes and asked to select up to five which "you consider vital for the effective performance of your job."

Table 5 presents the results in terms of the percentage of respondents naming each purpose as vital. The list of purposes has been ranked in terms of these vital percentages. Finally the rank order of the frequency ratings is presented for comparison.

We first note that the two sets of ranks (most vital and frequency ratings) are almost identical. The rank order correlation is .95. Given the fact that the two questions were separated by several intervening questions, this correspondence is even more remarkable. In only a few cases is the difference in ranks greater than two ranks. Three purposes are ranked slightly higher as vital than as frequent: (a) make decisions about educational practices or products; (b) keep aware of who is working in specific subject or problem areas; and (c) prepare or plan teaching/classroom materials. One purpose has a slightly lower vital rank than frequency: gain theoretical information to support work in progress.

Six purposes are chosen as most vital by 42 percent or more. These same six purposes are also the six most frequent purposes for seeking information. They are: (a) provide information to others, (b) find answers to specific questions, (c) develop alternative approaches to problems, (d) keep aware of developments in education, (e) make or set policy, and (f) acquire ideas for my work.

Table 5. Purposes for Seeking Educational Information, Rank Ordered by Percent Naming Purpose as Vital in Their Work (N = 137)

Percent Naming as Vital	Vital Rank	Frequency Rank	Item #	Vital Purposes
58	1	2	17	Provide information to others
52	2	1	5	Find answers to specific questions
51	3	3	3	Develop alternative approaches to problem
45	4	4	9	Keep aware of developments in education
44	5	6	18	Make or set policy
42	6	5	1	Acquire ideas for my work
26	7	7	6	Identify new materials, methods, or procedures
20	9	8	11	Identify new sources of assistance for improving my work
20	9	12	15	Make decisions about educational practices or products
20	9	9	16	Prepare articles, reports, speeches, etc.
19	11	14	8	Keep aware of who is working in specific subject or problem areas
15	12	10	10	Keep aware of developments in related fields
13	13	11	7	Evaluate an educational practice or report
12	14	15	19	Support decisions already made
11	15	19	14	Prepare or plan teaching/classroom materials
10	16	13	2	Gain theoretical information to support work in progress
7	17	16	4	Determine results of related work performed by others
4	18	17	13	Learn a new specialty or competence
2	19	18	12	Brush up on an old specialty or competence

C. USER'S DIFFICULTY IN OBTAINING INFORMATION FROM VARIOUS TYPES OF SOURCES

Interviewees were presented with a list of 22 informal, semi-formal, and formal sources of information. First they were asked to check if they had never used any of the sources. For each of the remaining sources they were asked to check whether it is "very easy" to use (= 1), "somewhat easy" (= 2), "somewhat difficult" (= 3), or "very difficult" (= 4). "Never used" sources were scored (= 5).

We assumed that users would encounter more difficulty in obtaining information from some sources of information than from others. Table 7 indicates that this is true. Overall, personal notes and files, face-to-face conversations, and telephone calls were typically rated "very easy"; while theses and dissertations, unpublished papers and technical reports, suppliers' catalogs and national information systems were more frequently rated "somewhat difficult." The remainder of the other sources listed in Table 7 typically received ratings near "somewhat easy."

A factor analysis of these ratings of ease/difficulty of use of sources is summarized in Table 6. It indicates that as many as six factors are needed to account for the relationships among these ratings of sources.

Before examining the data, we had expected to find possibly four or five factors, including a factor for informal sources and another for print sources. However, the existence of as many as six factors was a surprise.*

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* An earlier factor analysis, based on 106 cases, yielded eight factors, accounting for 72 percent of the trace. The current analysis, based on 136 cases, has extracted only 60 percent of the trace with six factors. An eight factor solution was computed but the 7th and 8th factors had eigenvalues below 1.00, and resulted in a less satisfactory structure.

Table 6. Factor Analysis of Users' Ratings of Difficulty in Using 22 Information Sources (N = 136) (Decimals Omitted)

Sources	Factors					
	I	II	III	IV	V	VI
Face-to-face discussions	82					
Telephone calls	87					
Meetings	31	57				33
Correspondence	40	65				
Personal notes, files		77				
Mass media		51		46		
Conferences and conventions			68			36
Information centers			70			
National information services			55		58	
Libraries			60	37		
Government publications	36			53		
Textbooks and reference books				79		
Handbooks				67		
Journals				59		
Abstracts, indexes, bibliographies				57	47	
Information analysis products			35		65	
Technical reports					76	
Theses					78	
Courses						70
AV media						77
Suppliers' catalogs						66
Newsletters						46

NOTE: Principal axis factor analysis, followed by Varimax rotation. 60 percent of trace extracted by 6 factors. Loadings under .30 omitted.

Although these data relate only to users' ratings of "difficulty" in obtaining information they need from the sources (not "usefulness," "frequency of use," etc.), they suggest that users may exhibit a number of different patterns, including the following:

Factor I	Use of personal sources (face-to-face, phone, meetings, correspondence);
Factor II	Use of information sources (notes, mass media, meetings, and correspondence);
Factor III	Use of "organized" sources (national services such as ERIC, NTIS, information centers, conferences and conventions, libraries, and information analysis products);
Factor IV	Use of formal print sources (journals; handbooks; textbooks and reference books; government publications; abstracts, indexes, and bibliographies; and libraries);
Factor V	Use of technical print sources (unpublished papers and technical reports; theses and dissertations; information analysis products; national information services; and abstracts, indexes, and bibliographies); and
Factor VI	Use of AV media, suppliers' catalogs, newsletters, and courses (which seem to be typically "least effort" sources for practitioners).

Table 7. Rank Ordered Rating of Difficulty in Using 22 Information Sources (N = 136)

Rank	Item #	Rating Mean	Source
1	8	3.10	Theses and dissertations
2	7	2.96	Unpublished papers and technical reports
3	9	2.64	Suppliers' catalogs
4	22	2.60	National information systems
5	18	2.50	Audio-visual media
6	20	2.43	Information centers
7	6	2.35	Graduate or inservice courses, workshops
8	15	2.31	Information analysis products
9	19	2.23	Government publications
10	17	2.20	Abstracts, indexes, bibliographies
11	11	2.12	Conferences and conventions
12	13	1.96	Handbooks
13	4	1.88	Private correspondence
14	21	1.81	Library facilities
15	5	1.80	Meetings
16	16	1.78	Mass media
17	14	1.75	Textbooks and reference books
18	10	1.59	Newsletters, bulletins, announcements
19	12	1.57	Journal articles and reprints
20	3	1.43	Telephone calls
21	2	1.40	Face-to-face discussions
22	1	1.27	Personal notes, files

Rating Scale:
5 = NEVER USE
4 = VERY DIFFICULT
3 = SOMEWHAT DIFFICULT
2 = SOMEWHAT EASY
1 = VERY EASY

D. CRITICAL INCIDENTS OF INFORMATION SEEKING

The interviewer asked for two "critical incidents"; first about a recent (past month) experience where the interviewee needed information and could not get it, then a recent situation where the respondent was successful in finding needed information. If the successful incident was not considered by the respondent to be "typical," a typical incident was requested.

The responses to these incidents were highly diverse. Because of the great diversity of content, the small size of the sample (N = 137), and the highly varied types of users, relatively broad content analysis classifications were developed so that there would be some reasonably useful percentage of responses for each coding category.

1. UNSUCCESSFUL CRITICAL INCIDENT (UCI)

Slightly less than half, 42 percent of the 137 respondents, reported on "a situation where you really needed or wanted some information and just couldn't get it." In these unsuccessful situations the job activities or tasks had the following content:

17% instructional
21% policy-related
45% administrative
24% acquiring general information, communicating information by papers, publications, etc.
48% obtaining information for others

Note that these categories are not mutually exclusive; an activity may have more than one major content.

The types of information which were sought fall into the following major content classifications:

17% curriculum or instructional
67% educational content, but not curriculum or instruction

17% theory or research

7% applications

36% uses or costs

36% other types of statistics or facts

Again these categories are not mutually exclusive.

In response to the question, "Were you looking for the information in any specific physical form?" 76 percent said yes. Of those looking for a specific form,

81% wanted printed information

5% wanted a personal contact

***

44% were looking for a particular type of documentary source or form of information, but would have to search within the retrieved source to locate the information they sought

36% were searching for a highly specific item, fact, answer, or opinion

"How did you go about looking for this information?" The answers to this question indicated that:

5% sought help on how to find it

36% relied on others to find it

95% did some searching themselves

14% used their own files or personal collection

***

57% tried printed sources; the 57% is distributed:

- 5% used general references or collections (e.g., went to a library)
- 31% tried specific sources that would require further searching to locate the information after the materials were retrieved (e.g., an ERIC search)
- 21% tried highly specific sources that would pinpoint the item required (e.g., search for a specific journal article)

***

24% used the telephone

48% used face-to-face contacts

28% used no personal approach

51% used just one approach

- 35% used one approach and stopped
- 16% used one approach but continued to use it (e.g., follow up one call with another; go to two different libraries)

49% used two or more different approaches

- 35% used just two approaches
- 14% used more than two approaches (e.g., checked own files, talked to a colleague, went to the library)

Of the 49% who used two or more approaches:

- 40% shifted from printed to personal sources
- 15% shifted from less to more specific search strategy
- 24% shifted from less to more direct personal contact (e.g., mail to telephone to face-to-face)

"What was the nature of the difficulty you had?" The responses to this question were classified as follows:

- 21% believed the information they sought doesn't exist
- 26% didn't know how to find it
- 14% complained of inadequate retrieval capability
- 9% said the information was withheld
- 36% said further search was not feasible
- 38% said the information they obtained was not useful

"Has this happened before?"

- 79% Yes
- 21% No

The larger proportion of yes answers suggests that the majority of these unsuccessful incidents may be recurring problems.

"What do you think can be done to prevent this?"

- 21% improve the knowledge/data base
- 7% educate information searchers
- 23% improve retrieval capability

5% improve "freedom of information," prevent withholding
47% make it more feasible to get information
21% make information more useful

2. SUCCESSFUL CRITICAL INCIDENT (SCI)

All of the respondents related a successful incident. The questions was "Now, let's talk about a recent experience of yours on the job in which you were successful in getting information you really needed or wanted. Consider your major tasks or activities in the past month..."

"What was the job activity or task for which you needed the information?"

29% instruction
18% policy
34% management or administration
21% general information

"What was the type of information you were looking for?"

32% curriculum-related
53% educational, but not curriculum-related
26% use, cost
34% other facts or statistics

"Were you looking for this information in any specific physical form?"

69% Yes
31% No

Of those answering yes,

96% were looking for a tangible, predominantly print, form
17% were looking for a personal contact

***

Of those who were looking for a tangible (print) form,

38% sought a particular type of source or form, but would have to search within it for the information they sought

62% were searching for a highly specific item

Of those who were looking for a personal contact,

25% wanted to talk on the telephone

75% wanted to talk face-to-face

"How did you go about looking for the information?"

5% sought help on how to find it

36% relied on others to find it

89% did some searching themselves

20% tried their own files or collection

***

1% tried general print collections

34% tried specific types of print sources that would require further searching within them to find needed information

31% tried very specific print sources

***

27% did not use any personal sources

1% relied primarily on correspondence

23% relied primarily on telephone communication

49% relied primarily on face-to-face communication

***

(Search Strategy)

2% did not provide a classifiable response

43% used one approach:

- 34% used one basic approach
- 9% used one method, but pursued it further

55% used more than one approach:

- 35% used two approaches
- 20% used more than two approaches

Of the 55% using two or more approaches:

36% shifted from print to personal

29% shifted from less to more specific

22% shifted from less personal to more personal (e.g., mail to phone to face-to-face)

"From the time you started to look for the information, what was the maximum amount of time you could allow to get it?"

65% less than 10 days
35% more than 10 days
16% more than 30 days

"If you had to look for this information again, would you do it the same way?"

90% Yes

"Do you think other [name of subaudience] would use an approach like the one you just described to seek information on a job-related problem?"

4% No answer
74% Yes
13% No
9% Don't know

"What did you do with the information once you'd found it?"

[End Use]
  40% report
  4% state of art
  27% incorporated into larger communication
  26% applied
  2% interpreted into theory
[Transformation]
  6% did not provide sufficient information to classify
  26% passed it along to others as is
  38% summarized it
  30% interpreted it, evaluated it

"Is the experience you just described typical of the situations in your job which require information?"

84% Yes

Some had comments: Typical, but more complex than most. Situation typical, but not procedure; usually have more time. There is no typical incident.

3. COMPARISON OF SUCCESSFUL AND UNSUCCESSFUL INCIDENTS

There are several areas where the two types of incidents differ. Regarding work activity, unsuccessful incidents tended to be more associated with management or administration activities (45% UCI; 34% SCI) and less associated with instructional activities (17% UCI; 29% SCI).

Content of the information sought also differs somewhat: 67 percent of the UCI versus 53 percent of the SCI were concerned with educational but non-instructional content; 36 percent of the UCI versus 26 percent of the SCI were concerned with use or cost information. By contrast, 17 percent of the UCI, but 32 percent of the SCI were curriculum or instructional in content.

Hence, users tend to report relatively more successes and fewer failures when their activities are concerned with instruction or the content of the information they seek is curricular or instructional. Conversely, those engaged in administrative activities or those searching for non-instructional educational content, or use or cost information, seem to have somewhat greater difficulty--at least in terms of the critical incidents they report.

There are major differences in specificity of form of print material which distinguished the unsuccessful and the successful incidents. In 62 percent of successful searches, the search was specific and limited--i.e., users knew quite specifically what document or file or fact to search for, while in only 36 percent of unsuccessful searches was the search this specific.

There is also a greater tendency for users in unsuccessful searches to rely on others to search (36% versus 26%), but note that unsuccessful users also did slightly more searching themselves (95% versus 89%).

However, there are no differences in use of personal sources and no marked differences in the flexibility of search strategy, except in 49 percent of UCI, users shifted from print to personal (versus 36% of SCI). Apparently, users failing to find information in print sources turn more frequently to personal sources.

4. RELATION OF UNSUCCESSFUL CRITICAL INCIDENT DIFFICULTIES TO OTHER VARIABLES

Four types of UCI difficulty--(a) retrieval problems, (b) withheld information, (c) unfeasible search, and (d) retrieved information not useful (each expressed as a dummy variable)-- were correlated with 18 other variables relating to who searches, information budgets or money spent, time spent seeking information, type of organization, and general type of work activity accomplished in the position. Generally there were no significant relationships; in fact only two of 72 correlations were significant at the P = .05 level. Both significant correlations related to the tendency for "not useful" information problems to not be associated with those in local educational agencies (r = -.21) or those whose position involved instructional activities (-.19). These correlations tend to confirm that educational audiences who are concerned with curriculum and instruction may stand a somewhat better chance of finding useful information. At the simplest, the correlations suggest that teachers and supervisors of instruction have fewer problems in retrieving useful information relevant to their major job activities.

5. A TYPICAL INCIDENT

Although 84 percent said their successful incident was typical, 14 percent said it wasn't; 2 percent did not answer. Those who said it wasn't typical were then asked to describe a typical incident (Q # 42b).

Q # 42b - Describe a typical incident.

If the interviewee said successful incident described before was typical, it was scored again using categories listed below. Otherwise, the new incident was scored.

For content:	27%	educational programs
	19%	miscellaneous statistics
	15%	financing
	15%	policies
	6%	administration/staffing

	4%	legal
	4%	guidelines for training/evaluation
	1%	educational materials
For form:	17%	statistics
	13%	reports, articles, abstracts
	11%	"printed"
	9%	materials
	6%	interview
	5%	discussion, recommendations
	4%	computer printout
	3%	records
	2%	rulings
	1%	index, references
For source:	38%	ask expert to provide information (e.g., librarian, consultant, content expert)
	24%	interview/phone
	22%	literature search, library search, ERIC
	21%	looked through reports, articles, books
	19%	discussions/meetings
	8%	went to own files
	5%	looked up records
	4%	asked subordinates to find information

Sequence is not obtainable since it was often not indicated.

Table 8 presents the results of a content analysis of this typical information incident in terms of the various subaudiences. The column headed "Curr. %" indicates the percentage of each subaudience whose typical incident search involved content dealing with curriculum or instruction. A one-way analysis of variance indicates that there are significant differences among the groups. While no local board members, state legislators, or U. S. Congressional aides were concerned with curriculum and instruction, 92 percent of the teachers, 75 percent of the principals, 62 percent of the supervisors of instruction, and 67 percent of the College of Education faculty incidents were concerned with curriculum or instruction.

Table 8. Content Analysis of a Typical Information-Seeking Incident in Terms of Differences Among Subaudiences

SUBAUDIENCE	CONTENT			SEARCH STRATEGY				SEARCHER		
	Curr.%	Policy %	Data %	Specif.	Direct	Person %	Persist Flex.	Self %	Info %	Sub. %
Elementary and Secondary Education										
Teachers	92	08	00	1.50	0.17	42	1.75	67	00	00
Principals	75	38	25	0.88	0.38	100	3.12	38	12	38
Supervisors	62	23	38	1.77	0.00	62	2.38	69	00	23
District Staff	42	58	33	1.43	0.50	92	3.00	67	17	50
Intermediate Unit Staff	57	29	14	1.29	0.00	43	1.75	43	29	14
State Agency Staff	43	29	43	1.71	0.86	71	2.43	57	43	29
State Boards	50	67	17	0.83	0.50	67	2.00	17	33	16
Local Boards	00	89	33	1.44	0.33	67	1.67	44	22	44
State Legislators	00	78	44	2.00	0.00	44	1.89	22	11	44
U.S. Congressional Aides	00	75	75	1.25	0.00	25	1.50	25	50	00
F-test for Above Audiences	.0001	.002	NS	NS	NS	.05	.02	NS	NS	NS
Higher Education, Special Interest, Information Specialists										
Education Faculty	67	17	33	2.00	0.00	83	2.50	67	17	00
Social Scientists	25	50	25	2.50	0.00	25	2.25	75	50	25
Institutional Researchers	20	20	80	2.40	0.40	40	2.40	40	20	60
College Presidents	50	50	25	2.25	0.00	25	2.50	100	25	25
Minority Organization Representatives	11	56	44	1.22	0.89	67	1.89	33	00	33
Women's Organization Representatives	15	57	29	2.14	0.00	86	2.29	43	29	29
Information Center Staff	20	60	20	1.60	1.20	60	1.80	40	40	20
State Agency Information Staff	40	30	30	1.20	0.90	50	2.10	50	60	30
F-test for Above Audiences	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F-TEST FOR ALL 18 AUDIENCES	.01	.05	NS	NS	NS	NS	NS	NS	NS	NS

Policy content ("Policy %") is also a content area with significantly different percentages among the subaudiences, ranging from 89 percent for local boards, 75 percent for state legislators, and 75 percent for Congressional aides down to 8 percent for teachers.

Although there is a substantial range among the subaudiences in terms of the number of incidents involving searches for data or statistics (from 80% for institutional researchers, 75% for Congressional aides, down to 0% for teachers), the within-group variation is so large there is no evidence of a statistically significant between-audiences difference. Note that the three content areas (curriculum, policy, data) are not mutually exclusive.

The search strategy that users reported using in their typical incident was examined in four ways. First, the incident was scored 0 to 3 in terms of the increasing specificity of form of printed information that was sought ("Specif."). Although these specificity scores range from 0.88 (school principals) to 2.50 (social scientists), there is no statistically significant difference among the subaudiences. Second, the incidents were scored 0 to 3 in terms of the directness of interpersonal contact sought ("Direct": 0 = none; 1 = mail; 2 = phone; 3 = face-to-face). Again there is substantial subaudience variation ranging from 0.00 to 1.20, but no evidence of a statistically significant difference among the groups. Third, the incidents were scored in terms of whether the individual personally sought the information from an interpersonal source (e.g., letter, call, face-to-face conversation, meeting), ("Person %"). There is a statistically significant difference among the first group of subaudiences in terms of their use of interpersonal sources, with the incidence of use ranging from 42 percent for teachers and 44 percent for state legislators to 100 percent for principals and 92 percent for district staff. There is no difference for the second group of subaudiences.*

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* The first group of subaudiences consists of all subaudiences which are concerned with elementary and secondary education. The second group of subaudiences consists of higher education, special interest, and information specialists subaudiences. Because statistically significant differences among the first group are masked when all 18 subaudiences are compared, we have computed and reported analysis of variance tests for each group and for the total. In general there are three reasons why there are few significant differences among the second groups: (1) sample sizes are smaller; (2) within-subaudience differences are relatively large; and (3) (sometimes) the averages among these subaudiences are less different. For most variables reported in Table 4, 5, and 7, it appears that within-subaudience variability is the major reason for the lack of significant F-tests in the one-way analysis of variance.

Finally, the incidents were scored in terms of the persistence and flexibility of the search strategy ("Persist. Flex": 1 = used only one source; 2 = used only one kind of source, but more than one source of this kind; 3 = used two different kinds of sources; 4 = used more than two different kinds of sources). There are statistically significant differences among the "elementary and secondary education" subaudiences on persistence and flexibility of search, with scores ranging from 1.50 for Congressional aides (who frequently turn to just a file, a colleague, or the Library of Congress), and 1.67 for school board members, to 3.12 for school principals, and 3.00 for school district staff. There is no difference for the "higher education and special interest" subaudiences.

The last three columns in Table 8 indicate the percentage for each group in terms of who usually does the search.* The three categories ("self," "info" - information specialist, "sub" - subordinate) are not mutually exclusive. An individual might search and also have others search, including information specialists and/or subordinates. There is no statistically significant difference in terms of incidence of own searches ("self %"), use of subordinate ("sub %"), or use of information specialists ("info %").

To summarize, content analysis of a "typical incident" indicates that the various education information user subaudiences do differ significantly in the gross content of their information search (curriculum, policy). Among audiences concerned with elementary and secondary education there are also differences in the search strategies they employ (uses of personal sources, persistence and flexibility of search). The gross differences among subaudiences in whether the content was concerned with curriculum (and instruction) or with policy make sense in terms of the roles these various subaudiences play in education. Possibly less predictable are the differences in search strategy (preference for personal sources, persistence and flexibility). Given the non-random selection and the extremely small size of each subaudience sample, very few comparisons between two groups will be statistically significant or generalizable, but, with this caution in mind, consider the following: Among local educational agency audiences, especially principals and district staff, there is a relatively high preference for personal sources and a very low incidence of use of information specialists. Moreover, district staff and principals (school administrators) appear to be the most persistent and flexible searchers among all the subaudiences. By contrast, Congressional aides and social scientists display far less tendency to use personal sources, but a relatively greater tendency to rely on information specialists to search for them. Neither of these latter groups scores as high on persistence and flexibility as the school administrators. The education faculty are comparable to the social scientists in their persistency, but highly opposite in their preference for personal sources and relative non-use of information specialists. There are other comparisons, but these may suffice for illustration. Again, we must warn the reader that these are descriptive differences which apply only to the small numbers of highly select (but not necessarily representative) persons whom we interviewed.

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* This data is not associated with the "typical incident," but with a series of questions that immediately followed: "Sometimes people in your job search for information themselves. Sometimes people have someone else do the search. Which do you do?...Which do you prefer?"...[IF OTHERS] "Who usually does the search for you?"

As an exploratory study, the field interview results do clearly suggest that some education audiences will differ in the way that they search for information; however, the samples involved are simply too small and non-random to place much, if any, credence in the specific scores or percentages as population estimates for any particular group.

The three critical incidents, "unsuccessful," "successful," and "typical" (recall that for most but not all persons their successful incident was also the typical incident) and the immediately following questions on who usually searches provide a general picture of the variations among subaudiences in terms of the content of the search, the form of the information sought, the search strategy employed, and who usually looked for the information.

E. SOCIOMETRIC INFORMATION: USERS AS DIRECT PROVIDERS OF INFORMATION

Although two of the 18 subaudiences, information center staff and state agency dissemination and information staff, are specifically engaged in providing information to others, virtually all "users" we interviewed were also direct "providers" of information in the sense that they pass information on to others or others come to them for information. As we have seen in our examination of difficulties in using sources of information and in the use of sources in searching for information, there is a strong preference on the part of many persons to turn to others in seeking information rather than to print or other inanimate media. Our interview sampling method, which was concerned with interviewing as many types of persons in as many organizations as possible, precluded looking very deeply at the interrelations among persons in terms of their communications networks; however, we did include several questions which helped to locate the interviewee in terms of his or her tendency to seek and to provide information through interpersonal channels. In this section we focus on users as direct providers of educational information. Table 9 summarizes data on a number of interview questions pertaining to this topic.

The first data column in Table 9, headed "Rept. %," indicates the percentage of persons who gave a response indicating that they prepared a report of their findings for use by others (rather than, say, applied information to solve a problem) when asked what they did with information once they had found it. The differences among the 18 subaudiences are not significant; however, the differences among the "elementary and secondary education" subaudiences are significant. In the "elementary and secondary education" group, the high reporting subaudiences are supervisors of instruction (77%) and state legislators (67%). Among the groups that tend not to prepare written reports are: teachers, principals, state agency staff, and information center staff.

The next data column in Table 9, labelled "Transform," indicates the degree of "transformation" or "processing" which the user applies to information before providing it to others. Please note that this applies to all kinds and types of providing information, not simply to written reports. A four-point scale was used to score each individual's response: 0 = did not provide it to others;

Table 9. Providing Information

SUBAUDIENCE	Rept. %	Trans-form	Freq. Come	% Time	# Levels Come	# Levels Pass	% TYPE INFORMATION REQUESTED			
							GEN.	INST.	POL.	SPEC.
Elementary and Secondary Education										
Teachers	17	1.5	1.3	36	4.2	4.8	16	75	00	08
Principals	00	2.9	1.5	17	5.1	5.1	38	38	35	50
Supervisors	77	2.2	1.2	35	5.0	4.9	31	62	38	31
District Staff	42	2.0	1.0	32	5.3	5.2	33	33	42	17
Intermediate Unit Staff	29	1.3	1.3	22	5.0	5.0	14	43	29	43
State Agency Staff	14	2.4	1.4	30	5.7	3.3	14	43	71	14
State Boards	33	1.8	1.3	26	4.7	4.3	00	33	67	50
Local Boards	44	1.6	1.8	32	3.8	4.3	33	22	56	33
State Legislators	67	1.4	1.3	26	3.8	3.6	22	00	89	11
U.S. Congressional Aides	25	2.8	1.0	21	4.8	1.2	00	00	100	25
F-test for Above Group	.01	.01	NS	NS	.024	.001	NS	.02	.001	NS
Higher Education, Special Interest, Information Specialists										
Education Faculty	50	2.5	1.0	37	5.2	5.2	17	83	67	17
Social Scientists	50	2.2	1.2	18	4.5	4.0	50	00	25	25
Institutional Researchers	40	2.0	1.2	33	4.4	4.2	40	00	60	00
College Presidents	50	1.8	1.0	28	5.5	5.2	00	00	100	25
Minority Organization Representatives	44	1.2	1.3	34	5.1	4.7	44	44	22	44
Women's Organization Representatives	57	1.4	1.7	24	4.9	4.7	29	43	57	14
Information Center Staff	00	2.4	1.6	39	5.6	5.6	00	60	40	40
State Agency Information Staff	50	1.5	1.2	29	5.0	4.9	10	70	40	20
F-test for Above Group	NS	.05	NS	NS	NS	NS	NS	.01	NS	NS
F-TEST FOR ALL 18 AUDIENCES	NS	.01	NS	NS	NS	.01	NS	.01	.01	NS

1 = passed it along; 2 = summarized it; 3 = interpreted or evaluated it. Only 7 percent of the total sample did not pass the information on to others;* 26 percent passed it along "as is"; 38 percent summarized it; and 30 percent interpreted or evaluated the information before providing it to others. User groups differ significantly in the extent to which they provide transformed information. School principals (2.9) and U. S. Congressional aides (2.8) interpret or evaluate nearly all the information they provide to others. Other groups which tend to interpret or summarize much of the information they provide to others include: education faculty (2.5); state agency staff (2.4); information center staff (2.4); social scientists (2.2); supervisors of instruction (2.2); school district staff (2.0); and institutional researchers (2.0). Groups with information provision styles characterized by tending to pass information on with little transformation include: minority organization representatives (1.2); women's organization representatives (1.4); intermediate unit staff (1.3); state legislators (1.4); and SEA dissemination and information staff (1.5).

We note that there appears to be a small inverse relation between written reporting and degree of transformation (rank order correlation based on percent reporting and average transformation for the 18 groups = -.35). Some groups rarely prepare written reports but do much interpreting and evaluation of the information they do supply (e.g., principals, state agency staff, U. S. Congressional aides, information center staff), while other groups do relatively much written reporting but little interpretation (e.g., women's and minority organization representatives, state legislators, state agency dissemination and information staffs). Some groups fail to exhibit this inverse relationship. For instance, supervisors of instruction, education faculty, and social scientists do much written reporting and much interpreting, while teachers, intermediate unit staff, and state board members do relatively little written reporting and little interpreting of the information they pass along.

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* Another question asked specifically if the respondent passed information on or only used the information for her/his own purposes. Only 8 percent said they used it themselves while 92 percent said they passed it on. The results for these two questions, one open-ended and the other quite specific, tend to confirm the fact that nearly all users pass information on to others. The close correspondence of the two figures (7% versus 8%) also suggests that the reliability of the open-ended coding and the consistency of user response are quite high.

Despite these differences all of the audiences are heavily engaged in responding to requests for information and spend substantial amounts of their time responding to such requests. Indeed only 1 of the 137 persons interviewed said people did not come to the respondent for education-related information.

The column labelled "Freq. Come" indicates averages for each group based on the following scale (percentage in brackets indicate percentage of the total group responding): 1 = daily (72%); 2 = weekly (23%); 3 = monthly (4%); 4 = quarterly (1%); and 5 = yearly (0%). There are no statistically significant differences among the groups in terms of the one-way analysis of variance. The great majority of nearly all the groups indicate that people come to them at least daily for information.

Respondents were asked to estimate the percent of time they spend in activities related to giving information to others. Overall the average is 30 percent with a range from an average of 17 percent for school principals to 39 percent for information center staff. One-way analysis of variance indicates that differences among the groups are not statistically significant.

The column labelled "# Levels Come" is a simple count of the numbers of "levels" of persons the respondent identified as coming for information. For the entire sample, 85 percent said persons at the same level come, 89 percent said persons at lower levels in their organization come, 83 percent said persons higher in the organization come to them for information, 84 percent said professional colleagues come, 54 percent said experts come, and 82 percent identified other classes of persons (e.g., parents). There are statistically significant differences among the "elementary and secondary education" subaudiences in terms of the average number of levels of persons which are identified, but no differences among the "higher education, special interest, and information specialist" subaudiences. The majority of subaudiences identify at least five out of the six levels. Highest are: state agency staff (5.7 levels); information center staff (5.6); college presidents (5.5); and school district staff (5.3). All of these subaudiences thus face a moderately complex array of different types of information request contacts inside and outside their organization. By contrast, there are only two subaudiences identifying fewer than four levels of contacts: local school boards (3.8) and state legislators (3.8). Note that neither of these subaudiences tended to identify persons at "higher" levels coming to them for educational information (but many in these two groups tended to identify "voters," "constituents," "citizens," or "taxpayers" as significant contacts which were classified as "other").

In the next column of Table 9, labelled "# Levels Pass," the same type of average counts of levels is presented for "pass on to" (rather than "come to you"). The difference lies in whether the interviewee initiates or responds. There are statistically significant differences among the 18 subaudiences, with averages ranging from 1.2 levels (U. S. Congressional aides) to 5.6 (information center staff).*

Overall, there is a slight tendency to pass information on to fewer levels of persons than are encountered in responding to requests. The remarkable difference for U.S. Congressional aides (4.8 levels "come to," 1.2 levels "pass on to") was explained by one U. S. Senate aide who pointed out that if he provided information that was not requested to those outside his immediate work circle, "people would begin to expect this of me, and I can't even do a good job handling the requests that now come to me." The same kind of situation seems to prevail for state agency staff (5.7 levels "come to," 3.3 levels "pass on to"). However, for most audiences the difference between the average number of levels of persons who "come to" and to whom information is "pass on" is not great. Most of these users tend to respond to requests and also actively pass unrequested information on to many different levels of persons. We note that only 3 percent of those interviewed said that giving information to others was not an important part of their work.

We next turn to the question of the general type of content of the information which users find others requesting of them. Table 9 identifies four broad types of content: general (GEN); instructional (INST); policy (POL); and specific (SPEC). The table identifies the percentage of persons in each subaudience whose free response descriptions of the information requested could be classified into each of these four broad content classifications. One-way analysis of variance tests show that there are no statistically significant differences among the subaudiences in terms of their encountering requests dealing with "general" or "specific" information, but that there are highly significant differences in the relative incidence of requests for instructional and for policy information. The (college of) education faculty respondents are remarkable because of the high incidence of requests for both instructional (83%) and policy (67%) information. Others with instructional requests over 50 percent are: teachers (75%); state agency dissemination and information staff (70%); supervisors of instruction (62%); and information center staff (60%). Five subaudiences never identified requests whose content could be classified as instructional: state legislators, U. S. Congressional aides, social scientists, institutional researchers, and college presidents. Every description of the content of requests received by U. S. Congressional aides and college presidents was classified as being concerned with policy. Others encountering high incidences of policy information include: state legislators (89%); state agency staff (71%); state school board members (65%); education faculty (67%); institutional researchers (60%); women's organization representatives (57%); and local school board members (56%).

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* Note, however, that the overall difference is mainly attributable to the very significant differences among the "elementary and secondary education" group; there is no significant difference for the "higher education, special interest, and information specialist" subaudiences.

Table 10 presents additional information about educational information users as providers of information. (Some data already presented in Table 9, e.g., number of levels pass, frequency come, have been repeated in Table 10 to facilitate comparisons.) In Table 9, data was presented concerning the number of "levels" of persons the respondent identified as coming for information or to whom the user spontaneously passed information on. Table 10 in its first six data columns reports the percentage of each subaudience who said they usually spontaneously passed information to each of the six "levels." We first note that overall one-way analysis of variance tests indicate that the 18 subaudiences differ in the percentage passing information on to those at the "same," "lower," and "higher" levels in their own organization. However, the F-tests for the two subgroups indicate that these differences are mainly due to differences among the "elementary and secondary education" group; differences among the "higher education, special

Table 10. Levels of Persons to Whom Users Provide Information, and Amount of User Activity in Providing Information

	Pass Information to Others							Others Come To You For Information							Nr. People Come	Frequency Come	% Time Giving	Nr Superv.
	Same %	Lower %	Higher %	Coll. %	Exp. %	Other %	Nr. Levels	Same %	Lower %	Higher %	Coll. %	Exp. %	Other %	Nr. Levels				
Elementary and Secondary Education																		
Teachers	100	83	75	83	58	83	4.83	92	67	75	75	42	67	4.17	88	1.33	36	1.1
Principals	88	100	75	100	62	88	4.15	88	100	75	88	62	100	5.12	206	1.50	17	63.0
Supervisors	77	100	100	85	46	85	4.92	77	100	100	85	54	85	5.00	393	1.23	35	23.9
District Staff	83	100	83	100	75	83	5.25	83	100	92	100	83	75	5.33	875	1.00	32	17.9
Intermediate Unit Staff	71	100	100	100	71	57	5.00	71	100	100	100	71	57	5.00	171	1.29	22	18.1
State Agency Staff	29	71	57	71	43	57	3.29	100	100	100	100	71	100	5.71	757	1.43	30	27.6
State Boards	67	83	83	83	50	67	4.33	100	100	83	83	50	50	4.67	497	1.33	26	5.2
Local Boards	89	89	22	89	44	100	4.33	67	67	22	78	44	100	3.78	428	1.78	32	1.0
State Legislators	67	44	67	56	44	78	3.56	78	67	67	55	22	89	3.78	1512	1.33	26	2.1
U.S. Congressional Aides	00	25	25	50	25	00	1.25	75	75	100	75	75	75	4.75	3020	1.00	21	2.2
F-test for Above Group	.002	.001	.002	.09	NS	.012	.001	NS	.014	.001	NS	NS	NS	.024	.001	NS	NS	.0001
Higher Education, Special Interest, Information Specialists																		
Education Faculty	100	100	83	83	67	83	5.12	100	100	83	83	67	83	5.17	325	1.00	37	22.2
Social Scientists	100	50	50	100	25	75	4.00	75	100	75	100	25	75	4.50	603	1.25	18	8.5
Institutional Researchers	80	80	100	40	40	80	4.20	80	80	100	40	40	100	4.40	350	1.20	33	9.8
College Presidents	100	100	100	100	50	75	5.25	100	100	100	100	50	100	5.50	422	1.00	28	8.8
Minority Organization Representatives	67	89	78	89	67	78	4.67	78	89	89	89	78	89	5.11	1216	1.33	34	11.1
Women's Organization Representatives	86	71	71	86	86	71	4.71	100	71	71	86	86	71	4.86	666	1.71	24	25.9
Information Center Staff	100	100	80	100	80	100	5.60	100	100	80	100	80	100	5.60	190	1.60	39	7.4
State Agency Information Staff	90	100	100	80	50	70	4.90	90	100	100	80	60	70	5.00	1164	1.20	28	13.8
F-test for Above Group	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
F-TEST FOR ALL 18 AUDIENCES	.01	.01	.01	NS	NS	NS	.01	NS	.05	.01	NS	NS	NS	NS	.01	NS	NS	.01

interest, and information specialists" group are not significant. Moreover, although there is not an overall significance for the 18 subaudiences, the "elementary and secondary education" subaudiences also are significantly different in their tendency to pass information on to "others" (than persons in their own organization, colleagues, or experts). As noted previously, U. S. Congressional aides are notable in their reticence to pass information on to anyone. Here we see that none (of the four) Congressional aides indicated that they passed information on to persons at the same level or to "others." Just one of four aides (25%), and not necessarily the same aide, said he passed information on to those lower, those higher, or to experts, and only two passed information on to colleagues. By contrast all of the (seven) intermediate unit staff stated that they passed information on to those lower, those higher, and to colleagues outside their immediate unit. Generally those closer to school operations (i.e., teachers, principals, supervisors, district staff, and even intermediate unit staff) are more prone to pass information on to all levels, with the one exception of supervisors of instruction passing information on to experts (only 46 percent do; perhaps because they are the "experts" in their fields?). The majority of all these particular subaudiences spontaneously pass educational information on to all six of the "levels."

Among the other subaudiences in the "elementary and secondary education" group, SEAs tend not to pass information on to those at the same level, but are more prone to pass information on to those in their own organization at lower levels and to colleagues outside their SEA. State and local board members are perhaps surprising in the relatively high percentage who report that they do pass information on. Local board members tend not to think of anyone "higher" to whom they would pass information (22%), but all local board members identified parents, taxpayers, or constituents among the "others" to whom they pass on educational information. State legislators, perhaps because they are elected officials rather than staffers, display a pattern that is in marked contrast to the U. S. Congressional aides.

Turning now to the identification of the levels and types of persons who come to these subaudiences for information, we first note that there are only two statistically significant overall F-tests based on one-way analysis of variance for the 18 subaudiences, and that these differences are again mainly attributable to the "elementary and secondary education" group. The differences are in the percentage of persons in their same organization at "lower" and "higher" levels who come for information. Note that the majority of all subaudiences say that those "lower" in their organization come to them for information; the statistical difference is attributable primarily to the fact that everyone in many subaudiences said those at "lower" levels came, while only the great majority (67% or more) of other subaudiences so reported. The percentages for those reporting that persons at "higher" levels come to them are only slightly different, with the one exception of local school board members (who, as we have noted, generally do think of anyone as being "higher" than themselves in their LEA).

Among the types of persons, we note that "experts" are the only type of person with whom there is not a very strong tendency to provide information, and even in this case the majority of most of the subaudiences do report that they pass information on and have "experts" come to them.

The subaudiences differ dramatically (and statistically) in the average numbers of persons per year they estimated came to them for information. The averages range from 88 for teachers to 3,020 for U. S. Congressional aides. Overall, the average is 681 persons per year.

We have previously discussed the data for frequency with which people come and the percentage of time spent giving information to others. With a few exceptions, the majority of persons in most subaudiences say the frequency is "daily," and overall, the average estimated time spent giving information to others is 30 percent.

Finally, we note that one element of providing information to others is related to the individual's supervisory role. The subaudiences differ markedly in the average number of persons they report supervising with a range from 1.0 for local board members to 63.0 for school principals. (The overall average is 15.6 persons.)

IV. RELATIONSHIPS BETWEEN VARIABLE SETS

A. THE RELATION BETWEEN PURPOSES FOR SEEKING INFORMATION AND SOURCES USED

The 19 purposes which we presented to interviewees had been derived from several studies of information needs. We anticipated that there would be some correlation among the items, but were surprised that as many as eight purpose factors would emerge. Our next question was, do these purposes (or patterns of purposes) have anything to do with the sources people use?

The questionnaire data provided two different ways to answer this question. One way was to examine which sources (up to three) users mentioned in connection with the purpose they identified as being their most frequent reason for using information. A second way was to correlate purpose and source ratings.

To examine the relation between purpose and difficulty in using sources, a canonical correlation analysis was performed which examined the relationship between users' rating of frequency of seeking information for the 20 purposes listed in Tables 3 and 4, and their ratings of the ease/difficulty in obtaining information from the 22 sources listed in Tables 6 and 7.

The goal of canonical analysis is to define the primary independent dimensions which relate one set of variables to another, in this case the ratings of frequency of purpose for seeking information, with the ratings of ease/difficulty in getting needed information from various types of sources. The technique, like factor analysis, is primarily descriptive. The analysis suggests answers to three questions concerning:

(1) the number of ways in which the two sets of ratings are related

(2) the strengths of the relationships

(3) the nature of the relationships

Although the maximum number of independent multivariate relationships will be equal in number to the smaller of the two sets of variables, 20 in this instance, a test exists to estimate the statistical significance of each canonical function (relationhsip). The strength of the relationship is indicated by the size of the root (squared canonical correlation) between the independent composites of purpose variables and source variables for each independent multivariate relationship. Finally, the nature of each relationship is indicated by examining the correlations between the original variables and the canonical variables for both sets of variables. These correlations can be interpreted like factor loadings, in terms of the names of the original variables.

The canonical analysis indicated that there were only two or perhaps three significant roots (relationships). The first accounted for 53 percent of the total interset relationship between purposes and sources (a canonical correlation = .73). The second root accounted for 52 percent of the total interset variation (canonical correlation = .72). Both of these roots are significant at the .01 level (P = .0001 and P = .0003 respectively). The next root accounted for 35 percent of interset variation, but it was not significant at the .05 level (P = .065). Thus there appear to be two or perhaps three significant, independent multivariate dimensions, each exhibiting a moderately strong relation between patterns of frequency of purpose and ease/difficulty in getting information from sources.

Tables 11 and 12 identify the purposes and sources which have substantial correlations with the two significant canonical functions. Table 13 displays similar data for the third, near significant, canonical function.

Table 11 indicates that the first canonical function is characterized, in terms of purposes, by an opposition between (a) users who frequently prepare or plan teaching/classroom materials and are concerned with identifying new materials or methods, acquiring new ideas, learning new specialties and identifying new sources of assistance, and (b) users who set policy and support decisions.

The users who prepare classroom materials and are alert to new ideas, sources, or methods report less difficulty in using information centers, libraries, text and reference books, abstracts and indexes, theses and dissertations, journals, newsletters, graduate courses, and audiovisual

Table 11. Information Purpose and Source Variables With Substantial Loadings on the First Canonical Variable (N=136) (Canonical Correlation = .73)

Purposes		Sources	
Making or setting policy	.47	Telephone calls	-.43
Support decisions already made	.32	Correspondence	-.35
* * *		* * *	
Identifying new sources of assistance	-.25	Handbooks	.28
Learning a new specialty	-.27	Library facilities	.28
Acquiring new ideas for my work	-.28	Information Centers	.29
Identifying new materials, methods	-.43	Newsletters	.31
Preparing or planning teaching/ classroom materials	-.71	Journals	.32
		Courses	.43
		Theses, dissertations	.44
		AV Media	.46
		Abstracts, indexes, bibliographies	.49
		Textbooks and reference books	.56

Table 12. Information Purpose and Source Variables With Substantial Loadings on the Second Canonical Variable (N = 136) (Canonical Correlation = .72)

Purposes		Sources	
Gaining theoretical information to support work in progress	.60	Theses, dissertations	-.59
Finding answers to specific questions related to my work	.48	Information analysis products	-.48
Identifying new sources of assistance for improving my work	.46	Journals	-.47
Developing alternative approaches to problems	.42	Face-to-face discussions	-.46
Keeping aware of who is working in specific subjects or problem areas	.39	Unpublished papers and technical reports	-.46
Keeping aware of developments in related fields	.38	Newsletters	-.39
Determining results of related work performed by others	.36	Abstracts, indexes, bibliographies	-.32
Making decisions about educational practices or products	.33	Mass media	-.31
Identifying new materials, methods, or procedures	.32	Textbooks and reference books	-.30
Keeping aware of development in education	.29	Graduate or inservice courses	-.28
Acquiring ideas for my work	.27	***	
Evaluating an educational practice or product	.26	Personal notes, files	.23

media as sources of information. (Conversely, those who prepare classroom materials find telephone calls and correspondence difficult information sources.)

The users who frequently seek information to set policy or to support decisions find less difficulty in using telephone calls and correspondence as sources of information, and they tend to report greater difficulty in obtaining information they need from most of the more formal sources (e.g., textbooks, handbooks, theses, courses, journals, newsletters, information centers and libraries).

Although it is a gross simplification, it appears that this first canonical function, which accounts for over half of the interset variations between purposes and sources, can be characterized as a difference between the "print-prone," formal source using educational practitioner and the personal contact informal source using policy maker.

Table 12 indicates that the second canonical function seems to characterize the "information-prone" educator who tends to find it "easy" to get information from a wide variety of sources. Note that the strongest correlations on this second canonical variable are for purposes concerned with gaining theoretical information, finding answers, identifying new sources of assistance for improving work, developing alternatives, keeping aware of who is working and of developments in related fields, etc. These users tend to find theses and dissertations, information analysis products, journals, face-to-face discussions, newsletters, abstracts, indexes and bibliographies, mass media, books and courses all "easy" sources. Conversely, personal notes and files are a more difficult source. Note that this second canonical function is unrelated to such purposes as preparing articles and speeches, providing information to others, or making policy.

Table 13 suggests that the third canonical function is characterized by an opposition between (a) users who frequently prepare articles, reports, or speeches; provide information to others; and are concerned with theoretical information and (b) users who are interested in keeping aware of developments

Table 13. Information Purpose and Source Variables With Substantial Loadings on the Third Canonical Variable (N = 136) (Canonical Correlation = .59)

Purposes		Sources	
Preparing articles, reports, speeches	.35	Library facilities	-.28
Providing information to others	.34	Information centers	-.26
Gaining theoretical information	.21	Journals	-.26
***		Newsletters	-.22
		Unpublished papers and technical reports	-.22
		***	
Keeping aware of developments in education	-.26	AV media	.23
Developing alternative approaches to problems	-.27	Government publications	.28
Evaluating an educational practice or product	-.29	Telephone calls	.29
Learning a new specialty or competence	-.31	Courses	.30
Identifying new materials, methods, procedures	-.48	Suppliers' catalogs	.39

in education, and have special interest in identifying new materials, methods or procedures, learning new specialties, evaluating educational practices or products, and developing alternative approaches. In short, this canonical function seems to separate the "communicators" and the "innovators."

"Communicators" tend to find libraries, information centers, journals, newsletters, and unpublished papers and technical reports to be "easy" sources. The practice oriented "innovators" tend to find these sources more difficult, but find the information they seek more easily in suppliers' catalogs, graduate and inservice courses, telephone calls, government publications, and AV media.

Given the relatively small and non-random nature of this sample of educational information users, this canonical analysis should be considered as a tentative finding. However, it does suggest that perhaps several significant relationships will be established with the much larger mail survey study. Although the obtained canonical correlations may be expected to "shrink" if cross-validated, it seems clear that relatively strong and useful relationships can be established between users' general patterns of purposes for seeking information and the sources they generally use to obtain information.

At least five "types" of purpose-source relationships are suggested:

(1) the print-prone formal source using educational practitioner
(2) the informal source using policy maker
(3) the information-prone educator (who tends to use many sources)
(4) the "communicator"
(5) the practice oriented "innovator"

Another way to relate sources to purposes is to ask educational information users to consider a specific type of purpose (e.g., finding answers to specific questions related to their work) and then to identify the sources they would turn to first, second, and third to find information for the specific purpose.

Table 14 displays the cross tabulation between only the most frequently mentioned purposes and sources which were identified by the interviewees in describing the purpose for which they most frequently sought information. Note that Table 14 is a partition of a larger contingency table for 20 purposes and 22 sources. It represents only the data for 115 (of the 136) interviews in which users mentioned one of the eight most common purposes as their most frequent purpose for using information. Similarly, Table 14 lists only the most frequently mentioned sources.

Table 14 indicates that finding answers was the most frequently mentioned purpose for seeking information (with 20 percent of the 136 interviewees mentioning it). This purpose is closely followed by developing alternatives, and then acquiring ideas.

Overall, face-to-face discussions is the most frequently mentioned source, followed by telephone calls, and use of notes and files.

Table 14 does indicate some definite patterning of sources with purposes. For finding answers the most popular source is telephone calls, followed by face-to-face discussion, and then notes and files. For developing alternatives, users tend to turn to a somewhat greater variety of sources, but prefer to use face-to-face discussions, then telephone calls, notes and files, and journals. For acquiring ideas, journals are clearly the preferred source, but at least six other sources are used with moderate frequency. When making policy, the overwhelming preference is for face-to-face discussions, followed by meetings, libraries, and information systems. When providing information to others, the two most preferred sources are telephone calls and personal notes and files. Users who frequently write articles and speeches depend most heavily on their own files and notes and to some extent on face-to-face discussions. Users who mention keeping aware of developments in education as their most frequent purpose for seeking information tend to rely on journals, the telephone, and newsletters. Finally, those who make decisions (like the policy makers) tend to depend most heavily on face-to-face discussions.

Table 14. Frequency of Use of Sources in Connection with Most Frequent Purposes

No. Users Naming	Purpose	Number of Times Source Was Mentioned in Connection with Purpose								
	SOURCE USED (1st, 2nd, or 3rd)	Face-to-Face	Telephone	Notes and Files	Journals	Library	Meetings	Newsletters and Bulletins	Information Systems	Conferences and Conventions
27	Finding Answers	17	22	10	1	5	5	1	1	2
24	Developing Alternatives	16	13	9	8	4	6	-	3	2
18	Acquire Ideas	6	5	5	11	5	4	5	1	2
12	Make Policy	8	2	2	1	4	4	1	3	1
10	Provide Information	3	5	5	2	2	1	1	1	1
9	Prepare Articles and Speeches	5	3	8	2	1	-	2	-	-
7	Keep Aware in Education	1	4	1	4	2	1	3	2	2
8	Make Decisions	6	1	3	1	1	1	1	1	1
115	Totals	62	55	43	30	24	22	14	12	11

From the perspective of sources used, it appears that national information systems (e.g., ERIC) tend to be mentioned most frequently in connection with developing alternatives or making policy; newsletters seem to be used for acquiring ideas and keeping aware of new developments in education; meetings and libraries are used primarily to find answers, develop alternatives, acquire ideas and make policy. Journals serve two or three major purposes: acquiring ideas, developing alternatives, and keeping aware of new developments. Notes and files are commonly used for many purposes but principally for finding answers and developing alternatives. The telephone is also a heavily used source and is the major way users find answers, but is also used frequently to develop alternatives, acquire ideas, provide information to others, and keep aware of new developments. Face-to-face discussion is the major preferred source of most users. Discussions are heavily used to find answers to specific questions, to develop alternatives, to obtain information needed to make policy, plus: to make decisions, acquire ideas, or prepare articles, reports, or speeches.

Needless to say, the patterning of relationships between purposes and sources cannot be attributable to chance. Educational information audiences display a variety of needs (purposes) for seeking information and they turn to several different sources for any particular purpose. The patterning exhibited is reasonable and can be explained largely in terms of reasons users give for turning to these sources.

Table 15 indicates that the interviewees gave a great variety of reasons for using various information sources, with at least 29 different types of responses accounting for at least one percent of the reasons given. However, over one-fourth (29%) of the replies were codeable under only three categories: (1) the source is accessible or convenient, (2) it is easy to use, and (3) it's fast or saves time. Just over half (51%) of all responses were attributable to seven characteristics of the source: accessibility, ease of use, speed, "best" source, provides different viewpoints, comprehensiveness, and currency.

Table 15. Frequency (No.) and Percentage (%) of Total Number of Coded Responses to Question "Why Do You Go to This as a Source [of Information]?"

No.	%	Reason for Using Source of Information
69	11	Accessible, convenient, available
66	11	Easy way to get information, requires no effort
44	07	Fast, saves time, is quick
39	06	Best source of pertinent information
34	06	Provides for different ideas or viewpoints
32	05	Comprehensive extensive coverage
28	05	Current, up to date
23	04	Refers or directs me to correct source
22	04	Relevant, on target
22	04	Reliable, accurate, valid
21	03	In my own files, collection, memory
21	03	Most helpful, useful record of previous activity
19	03	Opportunity for dialogue, exchange of ideas
14	02	Concise, provides summary information
13	02	Test ideas, evaluation, feedback, verification
12	02	Provides authoritative statement, expert knowledge
11	02	Provides specific answers
10	02	It's personal
9	01	Next best source (no detail)
8	01	Part of my routine (e.g., meetings), comes to me directly (newsletters)
8	01	They will work until they get an answer
7	01	Provides for involvement, support, joint decision making
6	01	Provides synthesis, understanding
5	01	Good source (no detail)
5	01	Research-based
5	01	Provides background on problems
5	01	Character of the format makes it easy to find things
4	01	Good for news, local and national information
4	01	Provides general awareness of materials and ideas
39	07	Miscellaneous

B. THE EFFECT OF POSITION ON PURPOSES FOR SEEKING INFORMATION AND ON SOURCES USED

One of the primary concerns of this market study is to describe the information needs of various educational audiences. In the previous sections, the field interview data has proven that there are a number of significant relationships between patterns of purposes (needs) for information and sources used. It seems reasonable that purposes for seeking should also be related to the user's position or role (e.g., teacher, school board member), and given the strong relationships between purposes and sources, that there might also be some significant differences among types of positions in terms of sources used.

To explore these possibilities, two multiple discriminant analyses were performed. This technique is an extension of single-classification analysis of variance to include simultaneously a group of dependent variables. The computational problem is to determine the extent and manner in which several previously defined groups of subjects (in this case field interviewees with common types of positions, e.g., teachers, administrators) may be differentiated by a set of dependent variables (purposes or sources) operating together. A statistical test is available (Wilk's Lambda) which indicates the significance of overall group differentiation. Chi-square tests of the significance of each discriminant function are also computed. Finally, the univariate F-ratio for each dependent variable is computed. When two or more discriminant functions are significant, two dimensional plots may be made to graphically locate individuals or group centroids (means) in terms of pairs of discriminant axes.

Both of the multiple discriminant analyses were based on ten groups, which were formed by combining several of the original groups listed in Table 1. The purpose of this combination was to increase the size of each group while retaining reasonable homogeneity within groups. This was accomplished by combining the following: (1) intermediate unit and state education agency staffs; (2) local and state school boards; (3) state and federal legislators and aides; (4) women and minority interest group representatives; (5) state education agency information/dissemination and other information center personnel; and (6) all four of the higher education groups. The last combination seems the most questionable, but unfortunately each of the four higher education groups is quite small.

Given this regrouping into ten major types of positions, the first multiple discriminant function analysis employed the 20 purposes for seeking information as the set of dependent variables.

The overall F-test based on Wilk's Lambda yielded a probability level of less than .0001. Chi-square tests indicated that there were three significant discriminant functions with respective probabilities of P less than .0001, = .0022, and = .0128. Univariate F-ratios indicated that eight of the 20 purposes were significant at the .05 level and that two more items were under the .10 level. Table 16 displays the means and P-levels for these eight significant and two near significant items (high means indicate more frequent purposes). Group abbreviations in the heading of Tables 16 and 19 are as follows:

GOVN	Governance; Leg. = state and federal legislators and aides, S.B. = local and state school board members.
ADMIN	Administrators; LEA = local education agency staff, IU/SEA = intermediate unit and state education agency staff.
PRACTICE	Practitioners; S = supervisors of instruction, P = principals, T = teachers.
H.E.	Higher education; includes social scientists, institutional researchers, education college faculty, and presidents of institutions.
SPECIAL	INF. = state agency and other information/dissemination staff, W/M = women and minority interest group representatives.

Rankings appearing below each mean give ranks of the means across the ten groups of users from least frequent (1) to most frequent (10).

To facilitate study of some of the major differences, Table 16 has been organized so that the rank-ordered means across groups tend to shift from governance to administration to practice as one reads down the ten purpose items. Thus, legislators and their aides display the highest average for seeking information for the purposes of preparing articles, reports, or speeches; with school board

Table 16. Means of Ratings of Frequency of Purpose for Seeking Information for 10 Purposes Which Have Significant or Near Significant Differences Among Means (N=136)

												F-Test
PURPOSE FOR SEEKING INFORMATION		GOVN		ADMIN		PRACTICE			H.E.	SPECIAL		P Level
		Leg.	S.B.	LEA	IU/SEA	S	P	T		INF.	W/M	
Prepare Articles, Reports, Speeches	Mean	3.77	3.53	3.42	3.07	2.69	1.88	2.50	3.00	3.23	3.00	.014
	Rank	10	9	8	6	3	1	2	4.5	7	4.5	
Make or Set Policy	Mean	3.38	4.40	4.33	2.53	2.46	3.12	1.83	3.21	4.15	2.88	.001
	Rank	7	10	9	3	2	5	1	6	8	4	
Make Decision About Ed Pract.	Mean	1.85	3.40	3.41	2.47	3.46	3.38	2.42	3.16	2.92	2.25	.002
	Rank	1	8	9	4	10	7	3	6	5	2	
Keep Aware of Develop. in Ed.	Mean	3.38	3.60	4.08	3.53	4.15	3.62	3.33	3.47	3.85	3.00	.054
	Rank	3	6	9	5	10	7	2	4	3	1	
Keep Aware of Who is Working	Mean	2.38	2.53	3.50	2.40	2.69	1.50	2.17	2.84	3.00	3.12	.003
	Rank	3	5	10	4	6	1	2	7	8	9	
Determ. Results of Related Work	Mean	2.38	2.20	3.08	2.73	2.08	1.89	2.17	2.79	3.08	2.69	.011
	Rank	5	4	10	7	2	1	3	8	9	6	
Brush up on Old Specialty	Mean	1.92	1.93	2.33	1.93	1.85	1.88	3.08	1.95	2.23	2.56	.013
	Rank	3	4.5	8	4.5	1	2	10	6	7	9	
Learn a New Specialty	Mean	1.92	1.93	2.42	2.00	3.00	2.75	2.75	2.26	2.54	2.69	.072
	Rank	1	2	5	3	10	8.5	8.5	4	6	7	
Ident. New Materials, Methods	Mean	2.23	3.13	3.25	2.87	3.38	3.75	3.67	3.11	3.69	3.44	.015
	Rank	1	4	5	2	6	10	8	3	9	7	
Prep. or Plan Teaching Mater.	Mean	1.23	1.33	1.83	1.40	2.31	1.88	4.58	1.84	1.92	2.00	.001
	Rank	1	2	4	3	9	6	10	5	7	8	
Number of Interviews		13	15	12	15	13	8	12	19	13	16	

Scale: 1 = Not selected as a purpose; 2 = Least often; 3 = Next Most Often; 4 = "Most" Often; 5 = (the two items interviewee identified as "most frequently seek information.")

members next highest, followed by LEA staff. The three practice groups, supervisors of instruction, teachers, and principals, indicate the lowest use of information for this purpose. The ratings range from 1.88 for teachers, to 3.77 for legislators and their aides. The F-test for this item has a P-level = .014.

At the other extreme, preparing or planning teaching/classroom materials is overwhelmingly a teacher purpose (rating = 4.58). The next closest group is supervisors of instruction (rating = 2.31). All other groups have ratings of 2.00 or less with the lowest ratings found among the governance and administration groups. This item has a P-level of less than .001.

Each row of the table can be interpreted in a similar fashion.

It is also instructive to inspect the columns of this table in terms of the rankings across the ten groups. For instance, note that the legislative group has only two purposes (prepare articles, reports, and speeches; and make or set policy) with ranks above the median (i.e., 6 or higher), while this group has the lowest rank (1) for four purposes. School board members are above the median rank on the first four purposes listed. But LEA administrative staff is above the median on the first seven purposes (with ranks of 8, 9 or 10) and is not lower than fourth rank on any purpose.

This relatively high level of seeking information for many purposes is almost matched by another group--the state and other information/diffusion personnel, who tend to differ from LEA staff most markedly in seeking information less often to make decisions about educational practice, but who seek information more often to identify new materials, methods or procedures, and to prepare or plan teaching/classroom materials.

It was something of a surprise to this investigator to discover that the intermediate unit and state agency staff group displayed such relatively lower ratings and rankings than their LEA conterparts. In no case does the IU/SEA group display a higher ranking than the LEA group and the differences are quite large on several items.

Among the three practice groups the supervisors of instruction show an average (summed down the ten rankings for all ten purposes) which is somewhat higher than for principals or teachers, suggesting that overall supervisors seek information more frequently for most purposes. There are a number of marked differences among these three practice groups. For example, teachers have markedly lower ratings than principals or supervisors for seeking information to make decisions or to keep aware of new developments in education; but teacher are markedly higher on seeking information to brush up on an old specialty. Both teachers and principals are much lower than supervisors on keeping aware of who is working in specific subject or problem areas.

Perhaps because the higher education group is such a mixture (education faculty, social scientists, institutional researchers and top administrators), it displays a more middling set of ranks--but with above median ranks for determining results of related work, keeping aware of who is working, brushing up on old specialties, making decisions about educational practices, and making policy--all of which seem to reflect the research and administrative character of the group.

The relatively high overall rankings of the information/dissemination group have already been noted. The surprise is in the women's and minority interest groups which display above median ranks on the last six of the purposes listed with remarkably high ranks for keeping aware of who is working in a subject or problem area, brushing up on an old specialty, and preparing or planning teaching materials.

Obviously, there are a number of differences among these ten groups in terms of the purposes for which they seek information. The analysis indicated that there were three significant, independent functions or dimensions accounting for most of these differences. Table 17 displays the correlations between the list of 10 purposes and the three multiple discriminant functions. Read like factor loadings, we can see that the first discriminant function is easily identified by a -.76 for the purpose of planning or preparing teaching/classroom materials, and a +.60 for the purpose of making or setting policy. Referring to Table 13, we discover what one would expect. The teacher group has a

Table 17. Correlations Between Purpose Variables and the Three Significant Multiple Discriminant Functions (N = 136)

Purpose Item	Discriminant Functions		
	I	II	III
1. Acquiring ideas for my work	-.23	-.06	.21
2. Gaining theoretical information to support my work in progress	.22	.29	.34
3. Developing alternative approaches to problems	.07	.10	.16
4. Determining results of related work performed by others	.21	.42	.21
5. Finding answers to specific questions related to my work	.04	.12	-.01
6. Identifying new materials, methods, or procedures	-.24	-.01	.49
7. Evaluating an educational practice or product	.07	-.36	.11
8. Keeping aware of who is working in specific subjects or problem areas	.22	.38	.37
9. Keeping aware of developments in education	.11	-.31	.31
10. Keeping aware of developments in related fields	.14	.30	.21
11. Identifying new sources of assistance for improving my work	.01	.13	.22
12. Brushing up on an old specialty or competence	-.33	.42	.15
13. Learning a new specialty or competence	-.27	-.09	.33
14. Preparing or planning teaching/classroom materials	-.76	.20	.30
15. Making decisions about educational practices or products	.12	-.36	.56
16. Preparing articles, reports, speeches	.36	.26	-.17
17. Providing information to others	-.04	-.12	-.21
18. Making or setting policy	.60	.14	.39
19. Supporting decisions already made	.16	-.11	-.28
20. Any other purpose(s)?	-.04	-.08	-.10

centroid of -2.19 while school boards have a +2.25, LEA administrators +2.07, and legislators +[illegible]84. Note that teachers are the only group with a negative centroid; all other groups are on the positive side of this first dimension. However, principals, supervisors, and the women and minority groups have relatively small positive values.

Returning to Table 17, we see that the second discriminant function displays no really high positive or negative correlations, but seems to be identified by three negative correlations: -.36 for evaluating an educational practice or product, -.36 for making decisions about educational practices or products, and -.31 for keeping aware of developments in education (similar to the innovative practice user type encountered in the canonical analysis). On the positive side of this second discriminant function are positive correlations of .42 for determining results of related work performed by others, .42 for brushing up on an old specialty or competence, .38 for keeping aware of who is working in specific subject or problem areas, .30 for keeping aware of developments in related fields, and .29 for gaining theoretical information to support work in progress. The positive side of this discriminant function looks something like the classical picture of the research scientist or scholar. This second discriminant function thus seems to provide an orientation between new knowledge and new practice. The group centroids displayed in Table 18 would suggest that supervisors of instruction and principals are farthest out on the "new practice" side of the dimension. There are no large positive (new knowledge) centroids, although women and minority representatives, teachers, information/dissemination staff, and LEA administrators display modest positive loadings. Legislators are dead center on this dimension.

We thus see that we need at least a three-dimensional "space" to locate the structuring of the purposes for which educational audiences seek information. Inspection of the centroids displayed in Table 18 indicates that the principals and the supervisors of instruction groups have essentially the same centroids on all three dimensions, and hence are very close "neighbors" in this three-dimensional "space." Although not quite as close, LEA administrators and information/dissemination staff are fairly similar. Accordingly, there appear to be at least eight different multiple discriminant purpose space locations

Table 18. Centroids for the Ten Groups on the Three Significant Multiple Discriminant Functions for Purposes for Seeking Information Variables

Group	Discriminant Centroids		
	I	II	III
Teachers	-2.19	0.32	1.58
Principals	0.34	-1.41	1.80
Supervisors	0.31	-1.43	1.74
LEA Administrators	2.07	0.22	2.59
IU/SEA Administrators	1.12	-0.49	0.57
Information/Dissemination Staff	1.59	0.26	2.12
School Boards	2.25	-0.47	1.46
Legislators	1.84	0.00	0.48
Higher Education	1.19	0.03	1.87
Women and Minorities	0.65	0.52	1.48

for the ten user groups--that is, there are at least eight quite different "locations" of group centroid purposes in this three-dimensional system.

Now what are the implications for these differences among users in terms of the information products and services they need? At this stage in our analysis of the field survey data our best information seems to come from the data available on the ease/difficulty users report in getting the information they need from various sources. Again, using the same ten groups we performed a second discriminant function analysis, using the 22 sources as the dependent variable set.

Again, the overall significance level, based on Wilk's Lambda, has a probability level of less than .0001. And there are three discriminant functions with probabilities (P) less than .05 (.0001, .0001, and .0046), as well as two additional near significant functions each with P = .07. Hence the educational information user groups display even greater dimensional complexity in their patterning of use of information sources than in their patterning for information purposes. Eight source items had univariate F-ratios with P less than .05. These sources are displayed in Table 19, which is read in the same way as Table 16, except that low means and low ranks indicate easy-to-get information sources and high means and ranks indicate difficult-to-get information sources.

Table 19 indicates that the first three sources (telephones, correspondence, meetings--all personal forms of information) are easiest for the governance groups while nearly all other sources listed are relatively more difficult for these groups (but more so for legislators than school board members). Aside from information systems, and possibly correspondence, none of these eight sources are particularly easy for the two administrator groups. By contrast, supervisors of instruction find nearly all of these sources relatively easy. However, principals and teachers rate the telephone and correspondence as relatively (to the other eight groups of users) more difficult (but note that the actual means are only 2.62 and 2.58 for correspondence and 1.75 and 2.08 for telephone--see the scale at the bottom of Table 19). Teachers, in addition, tend to rate meetings and information systems as more difficult than do most of the other groups. By contrast, teachers, principals, and supervisors

Table 19. Means of Ratings of Ease/Difficulty to Acquire Information from Eight Information Sources Which Have Significant F-Test Difference Among Means (N=136)

Source of Information		EDUCATIONAL INFORMATION AUDIENCE										F-Test P-Level
		Govn.		Admin.		Practice			H.E.	Special		
		Leg.	S.B.	LEA	IU/SEA	S	P	T		INF.	W/M	
Telephone	Mean	1.15	1.20	1.33	1.27	1.23	1.75	2.08	1.63	1.31	1.44	.010
1=Low (Easy)	Rank	1	2	6	4	3	9	10	8	5	7	
Correspondence	Mean	1.46	1.27	1.83	1.80	1.62	2.62	2.58	2.21	1.85	1.87	.001
	Rank	2	1	5	4	3	10	9	8	6	7	
Meetings	Mean	1.38	1.33	1.58	1.93	1.38	1.50	1.92	2.53	1.85	2.12	.001
	Rank	2	1	5	7	3	4	8	10	6	9	
Info Systems	Mean	3.38	2.87	1.50	2.33	2.46	2.75	3.67	2.16	1.92	3.06	.010
	Rank	9	7	1	4	5	6	10	3	2	8	
Books	Mean	2.54	1.73	1.58	2.00	1.46	2.25	1.25	1.53	1.92	1.50	.020
	Rank	10	7	6	9	3	2	1	5	8	4	
Catalogs	Mean	4.30	3.60	2.83	2.67	1.69	1.62	1.33	2.63	2.92	2.25	.001
	Rank	10	9	7	6	3	2	1	5	8	4	
AV Media	Mean	3.38	2.00	2.50	2.53	1.77	2.38	1.58	3.47	2.61	2.31	.001
	Rank	9	3	6	7	2	5	1	10	8	4	
Courses	Mean	2.92	2.40	2.42	2.07	2.00	1.50	1.67	3.00	2.69	2.19	.010
	Rank	9	6	7	4	3	1	2	10	8	5	
Number of Interviews		13	15	12	15	13	8	12	19	13	16	

Scale: 1=Very Easy, 2=Easy, 3=Somewhat Difficult, 4=Very Difficult, 5=Never Use tend to rate books, suppliers' catalogs, AV media, and courses as relatively easier sources.

With the exception of information systems, and possibly books and catalogs, the higher education group tends to rate all other sources listed as relatively harder-to-get information--with meetings, AV media, and courses ranked most difficult of all ten of the user groups.

Perhaps it is not surprising that the information/dissemination staff should rank national information systems low (easy) among the groups (but note especially that LEA administrators have the lowest ratings for this source). What is perhaps surprising is that, relative to the other groups, information/ dissemination staff rate books, catalogs, AV media and courses all as relatively harder sources.

Finally, the women and minority special interest groups give these same last four sources difficulty ratings that place them slightly under the median ranks--but they tend to rank the top four sources as relatively more difficult--especially meetings and national information systems.

Tables 20 and 21 display respectively the discriminant function correlations and the centroids for this analysis of information sources. These two tables are interpreted in the same way as Tables 17 and 18.

We see that the first discriminant function is characterized by correlations of -.56 for private correspondence, -.50 for telephone calls and -.29 for meetings (all personal sources) and by the highly positive .74 for suppliers' catalogs, .37 for graduate or inservice courses, .34 for textbooks and reference books and .31 for AV media. Does this sound like sources preferred by policy makers on one end and teachers on the other? This is exactly what Table 16 confirms.

The second discriminant function is characterized by .48 for meetings, .43 for AV media, .26 for courses, and .26 for government publications on the positive side, and -.51 for national information sources (ERIC, NTIS), -.33 for

Table 20. Correlations Between Sources of Information and Five Multiple Discriminant Functions (N = 136)

Source Items	Discriminant Functions				
	I	II	III	IV	V
1. Personal notes, files	-.05	.15	.01	-.38	-.03
2. Face-to-face discussions	-.20	.13	.34	.33	.00
3. Telephone calls	-.50	-.02	.29	.00	-.01
4. Private correspondence	-.56	.13	.25	.21	.14
5. Meetings	-.29	.48	.38	-.02	-.38
6. Graduate or inservice courses, workshops	.37	.26	.38	-.11	-.08
7. Unpublished papers and technical reports	-.02	.02	.00	.08	.36
8. Theses, dissertations	.02	-.24	-.17	-.14	.24
9. Suppliers' catalogs	.74	.02	.15	.09	-.01
10. Newsletters, bulletins, announcements	.10	-.09	.22	.15	.11
11. Conferences, conventions	.05	-.02	.46	.27	.03
12. Journal articles and reprints	.14	-.08	.19	.26	.54
13. Handbooks	.17	.06	.16	.24	.18
14. Textbooks and reference books	.34	-.05	.02	.51	.36
15. Information analysis products	.06	-.33	.09	-.19	.06
16. Mass media	-.01	.15	.14	.09	.03
17. Abstracts, indexes, bibliographies	.15	-.18	.11	-.04	.27
18. Audiovisual media	.31	.43	.48	.19	.08
19. Government publications	-.18	.26	-.27	.14	.25
20. Information centers	-.03	-.09	.26	-.05	-.11
21. Library facilities	.06	.05	-.16	.28	-.34
22. National information systems	-.07	-.51	.24	.09	-.18

Table 21. Centroids for the Ten Groups on Five Multiple Discriminant Functions for Information Sources Variables

Group	Discriminant Centroids				
	I	II	III	IV	V
Teachers	-1.26	0.18	1.89	-0.15	0.72
Principals	-0.51	0.63	1.29	0.58	1.19
Supervisors	0.10	0.51	1.17	-0.45	0.92
LEA Administrators	0.44	1.40	0.93	-0.31	0.69
IU/SEA Administrators	0.20	1.57	0.92	0.16	0.84
Information/Dissemination Staff	0.45	1.23	1.62	0.43	0.87
School Boards	1.11	0.37	1.27	-0.37	0.41
Legislators	1.63	0.31	2.08	0.20	0.90
Higher Education	0.11	1.80	2.23	-0.32	0.57
Women and Minorities	0.04	0.80	1.38	0.06	-0.22

information analysis products (e.g., reviews, state-of-the-art papers), -.24 for theses, dissertations, and -.18 for abstracts, indexes, and bibliographies, on the negative side of this dimension. The negative side seems to characterize a pattern of sophisticated, research-oriented sources, while the positive side (except for government publications?) seems to characterize a less formal, aural (listening) media. What does Table 16 reveal? No negative centroids, but all three practitioner groups, school boards, and legislators are closest to the aural side. (Now the government publications source makes sense since certainly legislators and perhaps boards will be concerned with government publications, especially those concerned with educational legislation, finance, educational statistics, etc.) Groups with high positive centroids (sophisticated, research-prone sources) are: higher education, both administrator groups, and the information/dissemination group. (Here are the prime users of ERIC products and services! The important converse of this is that teachers, principals, supervisors, school board members and legislators are not as prone to use these kinds of products and services.)

The third discriminant function is characterized primarily by positive correlations, the higher being: .48 for AV media, .46 for conferences and conventions, .38 for meetings, .38 for courses, .34 for face-to-face discussions, .29 for telephone calls, .26 for information centers (talk to the reference librarians?), and .25 for correspondence. By contrast, government publications is -.27. This dimension is obviously a heavily oral, personal contact dimension on its positive side. And Table 21 confirms that the centroids for all ten groups are substantially positive. (Recall that all groups tended to rate these kinds of sources as "very easy" to "somewhat easy"--see Table 19.) However, the centroids do range from 0.92 and 0.93 for the two administrator groups to 2.08 and 2.23 for legislators and higher education groups.

It should be recalled that the three discriminant functions we have just reviewed were all significant with P levels much less than .01. The last two functions (IV and V) were near significant with P less than .07. Function IV is identified by a .51 correlation for textbooks and reference books, .33 for face-to-face discussions, .28 for library facilties, .27 for conferences and conventions, .26 for journal articles and reprints and .24 for handbooks, and

-.38 for personal files and notes. The positive side of this function seems to encompass the more traditional forms for knowledge communication. Table 21 indicates that there are no especially strong positive or negative centroids. Principals and information/dissemination staff exhibit the highest positive values, while supervisors, LEA administrators, school boards, and the higher education group show the most negative values and are thus the least prone to get the information they need in textbooks, discussions, libraries, conventions, journal articles and handbooks.

The last discriminant function is marked on its positive side with a correlation of .54 for journal articles, .36 for unpublished papers and technical reports, .36 for textbooks and reference books, .27 for indexes, abstracts and bibliographies, .25 for government publications (R & D reports?), and .24 for theses and dissertations. The positive side of these dimensions clearly seems to be formal, research-oriented, bibliographic sources. The negative side of this function is marked by correlations of -.38 for meetings, -.34 for library facilities (and -.18 for national information services). This side of the dimension is more puzzling. Is it possible that the positive side characterizes those who "dig it out" for themselves while the negative side characterizes a tendency to let others search and organize information for them (librarians, ERIC, others at a meeting)? We can't be sure, but the centroids in Table 21 help a little. Most positive centroids are for principals, supervisors, legislators and their aides, information/dissemination staff and IU/SEA administrators. The only negative centroid (only -0.22) is for women and minority groups (who perhaps have less direct access to these kinds of information sources in education).

C. THE EFFECTS OF POSITION ON SOURCES AND ON SOCIOMETRIC VARIABLES

In one analysis, we factor-analyzed 32 variables which had some bearing on the personal exchange of information (e.g., number of persons supervised, type of work activity, ratings of difficulty in obtaining information from personal sources, "levels" users pass information to, who came to user for information, estimated number of persons coming yearly, frequency persons come, estimated percentage of time spent giving information). The analysis was something of a surprise since 67 percent of the trace was extracted by ten factors, but all ten had eigenroots above 1.0. This indicated markedly greater complexity than we had anticipated. Although the factors were interpretable, they were not particularly informative. (For example, the first factor is identified with the "levels" to which users normally give information, the second factor with use of "face-to-face" and "phone" sources.) So we returned to the table of zero order correlations to make these observations:*

(1) Generally these "interpersonal" information variables are not strongly correlated. Significant correlations do exist and patterns are evident; however (as was confirmed by the factor analysis), there is no one or even a few dimensions which would suggest a general underlying factor or tendency. Moreover, most of the significant correlations reported below are not particularly large.

(2) Those in instructional positions (teachers, but also others such as college of education faculty) tend to have more difficulty obtaining the information they need through face-to-face discussion (.17) or through telephone conversations (.27); they also tend not to use information specialists (-.26) or subordinates (-.22); they tend to give information to the "same" (.18) or "lower" (.17) level persons, and they have relatively fewer persons coming to them for information (-.24).

(3) Those in administrative positions do supervise more persons (.30),

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* Observations are based on presence of statistically significant correlations.

use subordinates to search for information (.17), give information to "lower" (.30) and "higher" (.26) levels in their own organization and to "colleagues" in other organizations (.18), give information to several "levels" (and types) of persons (.20); they also have "lower" (.32), "higher" (.23), "colleagues" (.21), and more "levels" (.27) to come to them for information.

(4) Those in policy positions find "phone" (.21), "mail" (.31), and "meetings" (.32) less difficult sources for the information they need; they tend to pass on information less to nearly all "levels," they also report that few "lower" (-.19) or "higher" (-.25) level persons come to then, and they tend to name a smaller number of "levels" as coming to them for information (-.21); however, persons in policy positions tend to have more persons come to them (.19).

(5) Those in research or information dissemination positions have more difficulty getting the information they need from correspondence (sources) (.26), but they tend to use "information specialists" (.19).

(6) There are no "interpersonal" variables that are significant for those users whose positions are associated with special interest representation (minority groups, women's groups).

(7) Generally, if users pass information to persons at one "level" they also tend to pass information to persons at other "levels" (same, higher, lower, colleagues, experts, others). Among the 15 correlations between the six types of levels, only one is not significant ("same" level and "experts"); however, the significant correlations are not markedly large (.18 to .44; average .31).

(8) This tendency is less evident for identification of levels who come to users for information. Of the 15 correations, only 8 are significant. (If "higher" level persons come, so do same level (.26) and "lower" level persons (.22) and "experts" (.30); if "colleagues" come, so do "same" (.33), "lower" (.36), "experts" (.45), and "others" (.26); finally, if "experts" come, so do "lower" level persons (.18).

(9) There is a strong reciprocity of levels, i.e., correlation between same type of level named as coming for information and as being

given information spontaneously (correlations range from .54 for "higher" levels to .70 for "experts"). Stated simply, if users name one type of level as coming for information, they tend to name the same type as persons they tend to spontaneously pass information on to. Note that these high correlations are not found for across-"level" correlations; about the highest correlation found is .32, giving to "colleagues" if "experts" are named as coming.

(10) If users indicate that "colleagues" (.22 to .32) or "experts" (.17 to .32) come to them for information, they tend to pass information on to all levels and types of persons. There is no significant relation between "experts" coming and passing information on to persons at the "same" level (.04).

(11) Also, those who name more numbers of levels (range is 0-6) as coming to them for information have a greater tendency to identify each separate level as one to which they pass on information; the converse is also true, those who name a greater number of levels to whom they give information tend to identify each of the separate levels as coming to them for information. This effect is stronger for number of levels "give" (correlations with single levels "come" range from .62 to .70) than it is for number of levels "come" (correlations with single levels "give" range from .27 to .44). In other words, those who spontaneously pass information on to many different "levels" of persons (those at same, higher, and lower levels in own organization, colleagues in other organizations, experts, others) experience a strong tendency for each level to come to them for information. If users report that many different levels of persons come to them for information there is a lesser (but still statistically significant) likelihood for them to name each separate level (same, higher, lower, colleagues, experts, others) as one involving persons to whom they spontaneously pass on information.

(12) Those who name persons at the "same" level as coming to them for information or to whom they give information tend to state (in relating their typical information-seeking incident) that they sought the information themselves from an interpersonal source. Although the correlations are not strong (.18 for "give" and .27 for "come"),

these are nearly the only significant relations with the typical incident interpersonal source variable.

(13) The one other significant relation to the typical incident interpersonal source variable is a negative relation (-.30) with "used others" to find the information. Stated simply, if persons ask others to find the information for them, there is a small tendency for them not to seek the information themselves from an interpersonal source.

(14) Use of information specialists or use of subordinates in the typical incident information search is unrelated to any variable except those characterizing positions. [Those in instructional positions tend to use neither specialists (-.26) nor subordinates (-.22); those in research and information dissemination positions do tend to use information specialists (.19)].

(15) Number of persons supervised is related (.20) to identification of persons at "lower" levels coming for information.

(16) Those who report that the telephone is an easy source of information they need also tend to identify experts as coming to them for information (.19); they also tend to rate persons as coming to them "daily." (These relations may possibly be better stated in the reverse, i.e., those who find the telephone a difficult source tend not to report "experts" as coming to them and tend to report less frequent requests for information.) Aside from significant relations to positions, difficulty in use of phone as a source is the only significant relation for personal sources. (No significant correlations were found for "face-to-face," "private correspondence," or "meetings.")

D. THE RELATIONSHIP OF SOCIOMETRIC VARIABLES TO THE OTHER VARIABLES

1. RELATIONSHIPS BETWEEN SOCIOMETRIC AND CONTEXT AND POSITION VARIABLES

Data concerning organizational contexts and positions were coded in terms of a series of "dummy" (0,1) categorical variables.* The organization was coded (percentage of sample so coded in parentheses) as to its general type: local education agency (LEA, 40%), state education agency (SEA, 24%), college or university (Coll., 17%), legislature (11%). Miscellaneous organizations not falling into these major categories were not coded.

Positions were coded in three different ways. First, positions were coded by type of activity: instructional (Inst., 29%), administrative (Admin., 52%), policy-making (Pol., 24%) research and information dissemination (R&ID, 22%), and special interest (Sp.Int., 12%). Some positions were multiply coded if it was clear from the interview that the position involved significant elements of more than one of these types. All positions were also coded by level of educational concern: elementary level (Elem., 60%), secondary level (Second., 64%), and post secondary (Post.S., 28%). Again the positions were multiply coded. Many, but not all, LEA, intermediate unit, and SEA staff were classified as both elementary and secondary. Finally, positions were classified as "local" (43%) (as opposed to state, regional, or national) in their major concerns for education. (Persons scored zero are "non-local.")

A canonical correlation analysis was performed using these 13 organization and position dummy variables as the predictor set. The criterion variable set was a group of 24 information "sociometric" variables.

Six information search variables were based on the critical incident and other interview data: use the help of others in searching for information (Use Help, 44%), use information specialists to search (Use Info. Spec., 22%), use subordinates to search (Use Sub., 28%), personally look for the information (Look Self, 50%), seek from interpersonal sources (Interpersonal, 61%), and directness of interpersonal source used in typical incident (Direct; Mean = 0.35, S.D. = 0.90; 0 = no interpersonal source used, 1 = mail, 2 = phone, 3 = face-to-face).

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* Sex, age, educational level, and other personal variables were deliberately omitted in this particular analysis because, as noted previously, personal data is heavily confounded with positions (subaudiences) and could lead to spurious results.

Seven variables were based on the "levels" the user spontaneously passes information to: persons at the same level in their organization (Pass Same, 80%), persons at lower levels (Pass Lower, 95%), persons at higher levels (Pass Higher, 77%), colleagues in other organizations (Pass Coll., 84%), experts (Pass Experts, 56%), "other" persons than those previously identified, e.g., parents, students, voters (Pass Others, 77%). The seventh variable in this group is the count of how many (0-6) of the "levels" each interviewee identified as ones s/he regularly passed information on to without specific requests (# Pass; Mean = 4.60, S.D. = 1.61).

A comparable set of seven variables described the users experience with people at different levels coming for information: (Come Same, 85%), (Come Lower, 89%), (Come Higher, 83%), (Come Coll., 84%), (Come Experts, 54%), (Come Others, 82%), (# Come, Mean = 4.82, S.D. = 1.31).

The remaining four "sociometric" variables provided quantitative estimates: number of persons supervised (No. Superv., Mean = 15.6, S. D. = 26.6), estimated number of people who come to you for information in one year (No. People, Mean = 681, S.D. = 1116), percentage of work time spent giving out information (% Time, Mean = 29.6, S.D. = 19.2), and how frequently people come to you for information (1 = daily, 2 = weekly, 3 = monthly, 4 = quarterly, 5 = less often; Mean = 1.31, S. D. = 0.59). Since this last variable increased in scale with decreasing frequency, we have labeled it (In)Frequency to facilitate interpretation in the tables that follow.

The canonical analysis indicated that there were four significant roots (relationships). The first canonical (R = .75, P .0001) accounted for 48 percent of the interset relationship between the organization and position predictors and the "sociometric" variables. Table 22 identifies the variables which

Table 22. Organization and Position Predictors and Information "Sociometric" Variables With Substantial Loadings on the First Canonical Variable (N = 137) (Canonical Correlation = .75)

Organization and Position Predictors		"Sociometric" Variables	
Legislature (Organization)	.68	No. People	.49
		Use Help (Search)	.31
Policy-Making (Position)	.54	Use Info. Spec. (Search)	.27
Post Secondary (Concern)	.45	***	
***		Look Self (Search)	-.24
		Interpersonal (Source)	-.26
		Nr. Superv.	-.26
		Come Lower	-.26
Local (Concern)	-.37	Pass Experts	-.30
		Pass Coll.	-.33
LEA (Organization)	-.41	Pass Same	-.41
		# Pass	-.49
Instructional (Position)	-.51	Pass Lower	-.55

have substantial loadings on this canonical function. Table 22 clearly indicates that the first canonical function is characterized by an opposition between (a) users who are mainly policy-makers, primarily in legislative organizations, and with predominantly post secondary educational concerns, and (b) users who are primarily in instructional positions, in LEAs, and with "local" concerns.

These two groups of users are contrasted in their relative tendency to deal with large numbers of people yearly who request information, use help, and use information specialists. (Policy-makers do, instructional staff in SEA don't.) Conversely, instruction staff tend to look for themselves, to seek information themselves from interpersonal sources, to supervise more people, to have lower level people come, and to pass information on to more levels including those lower and at the same level, colleagues, and experts; while policy-makers tend not to do these things.

The second canonical accounted for 47 percent of the interset relationships and is significant at P = .0002. Table 23 indicates that it is an opposition between (a) administrative and research and information dissemination positions, mainly in SEAs, and (b) users in policy-making positions, mainly in LEAs and with local concerns. In contrast to the LEA group, those in SEAs tend to pass to and have persons come to them from both "lower" and "higher" levels, to identify more persons as coming to seek information themselves from interpersonal sources, and also to use information specialists in seeking information. They supervise more people, encounter more frequent requests for information from others, but spend relatively less time (than the LEA policy group) in their work giving out information.

The third canonical accounted for 59% of the interset relationship (P = .023). Table 24 indicates that this canonical opposes (a) LEA administrators with local and primarily secondary education concerns from (b) users in research or information dissemination positions who are primarily in colleges and universities with post secondary concerns. Compared to the college researcher group, the LEA secondary level administrator group typically tends to seek information themselves from personal sources, to use fairly direct personal contacts, to supervise more persons, to pass information on to persons at lower levels in

Table 23. Organization and Position Predictors and Information "Sociometric" Variables With Substantial Loadings On the Second Canonical Variable (N = 137) (Canonical Correlation = .68)

Organization and Position Predictors		"Sociometric" Variables	
Administrative (Position)	.63	Come Lower	.55
		Come Higher	.46
SEA (Organization)	.44	Pass Higher	.45
		# Come	.41
R&ID (Position)	.36	Pass Lower	.36
		Interpersonal (Source)	.34
***		Information Specialist (Search)	.29
		No. Supervise	.25
		***	
LEA (Organization)	-.38		
Policy Making (Position)	-.38	(In)Frequency	-.21
Local (Concern)	-.44	% Time	-.26

their organization, and to interact more with colleagues (pass and come); however, they tend to pass less to experts and to do less searching themselves.

Tne fourth canonical accounted for 33 percent of the interset relationship (P = .025). Table 25 indicates that this canonical opposes (a) users with elementary level educational concerns and often in special interest positions from (b) college instructional personnel with post secondary education (e.g., teacher education) concerns. Compared to the college instructors, the elementary level special interest groups encounter less frequent requests for information, but report more interaction with experts to whom they pass information and who come to them. They also tend to use subordinates to search for information. They less frequently give information to higher levels, or have higher levels or "others" come to them. They supervise fewer people and spend smaller percentages of their work time giving out information.

These four significant canonical correlations are of interest not because of the magnitude nor for their particular interpretation, but rather because they vividly demonstrate statistically that the orgnization and the position an educational information user holds can tell us something about the user's tendency to acquire and communicate information through personal channels. The variables used in this analysis were quite crude, mainly categorical, and sometimes arbitrary.* And as we have noted repeatedly, the samples were small and non-random. Hence, specific generalizations are extremely unreliable. Nevertheless, the results confirm the potential validity of the Education Use Model posited relationships between context and sociometrics. We have not attempted to establish relations between sociometric data and person or information resource predictor variables, which should also display significant relationships to the information sociometrics.

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* For example, all elementary teachers were automatically coded: instructional, LEA, and local; in the absence of specific interview information indicating the contrary, all faculty of colleges of education were coded: instructional, college, (not) local, post secondary, and only if they indicated that they were engaged heavily in administration or research activities were they also coded in these categories.

Table 24. Organization and Position Predictors and Information "Sociometric" Variables With Substantial Loadings on the Third Canonical Variable (N = .37) (Canonical Correlation = .59)

Organization and Position Predictors		"Sociometric" Variables	
Secondary Level (Concern)	.53	Interpersonal (Source)	.50
Local (Concern)	.43	Directness (Search)	.40
Administrative (Position)	.41	No. Supervise	.37
LEA (Organization)	.29	Pass Lower	.21
		Come Colleagues	.20
***		Give Colleagues	.19
		***	
R&ID (Position)	-.29		
Colleges and universities (Organization)	-.33		
		Give Experts	-.24
Post Secondary Level (Concern)	-.47	Look Self (Search)	-.24

Table 25. Organization and Position Predictors and Information "Sociometric" Variables With Substantial Loadings on the Fourth Canonical Variable (N = 137) (Canonical Correlation = .57)

Organization and Position Predictors		"Sociometric" Variables	
Elementary Level (Concern)	.67	(In)Frequency	.48
Special Interest (Position)	.31	Pass Experts	.45
		Come Experts	.20
		Use Subordinates (Search)	.20
Post Secondary (Concern)	-.33	Give Higher	-.20
		Come Others	-.22
College (Organization)	-.41	No. Supervise	-.23
Instructional (Position)	-.51	% Time	-.23
		Come Higher	-.26

2. RELATIONSHIPS BETWEEN SOCIOMETRIC VARIABLES AND PURPOSES FOR SEEKING INFORMATION

Please refer again to Figure 1, page I-2. At this point we are interested in the relation between box 5 and box 6. A canonical correlation analysis was run between a set of 24 personal communication variables (e.g., sources, levels come to you for information, levels you pass information to, numbers, frequency, percentage of time, number supervised) and the 19 purposes listed in Table 5 (page IV-19). Four roots were significant beyond the .01 level. The first root (canonical R = .69) is characterized by users whose frequent purposes for seeking information include: preparing speeches, articles, and reports; acquiring ideas for their work; identifying new materials, methods, or proceudres; finding answers to specific questions; keeping aware of developments in education; and brushing up on an old specialty or competence. This type of users tends to give information to *colleagues* and to *experts* and to have *colleagues* and *experts* come to them for information. They tend to give information to a number of levels. Although they tend to seek information *from* interpersonal sources, they do *not* tend to ask others to find information for them. These users also tend not to supervise many persons.

The second canonical (R = .68) characterizes users who frequently seek information for the following purposes: to provide to others; to keep aware of who is working in specific subject or problem areas; to determine the results of others' work; to prepare articles and reports; to keep aware of developments in related fields; and to gain theoretical information. In contrast to the pattern of purposes found in the first canonical, this latter group of purposes is less concerned with innovation practices and more concerned with specifics, including answering specific questions of others. These users estimate that larger numbers of persons come to them each year; they estimate that they spend relatively larger percentages of time giving information to others; they tend to encounter requests "daily"; and they tend to identify persons at the "same" level in their organization coming to them. This group also tends to supervise fewer persons.

The fourth canonical correlation (R = .66) characterizes users whose pattern of frequent purposes for seeking information includes: to make decisions about educational practices or products; to prepare or plan teaching/classroom materials;

to acquire ideas for their work; and not to prepare articles, speeches, or reports; and not to seek information primarily to provide it to others. These practice-oriented users give information to a number of "levels" and especially to "colleagues," "higher," and "same" level persons. They tend to supervise a number of persons and to indicate a high (daily) frequency of requests.

As we have cautioned in the previous report, these canonical correlation results should be considered as exploratory and tentative. Certainly we have again fitted too many variables (24 personal communication variables and 19 purpose variables) for the size of the sample (N = 137). Despite this problem in overfitting, the results do suggest that users exhibiting different patterns of purposes for seeking information may in fact display different styles in their use of personal contacts as sources and in their role as a personal source of information for others.

3. RELATIONSHIPS BETWEEN SOCIOMETRIC VARIABLES AND SOURCES USED

Referring again to Figure 1, page I-2, this analysis related variables in boxes 5 and 7. A canonical analysis was run between the same set of 24 "sociometric" or personal communication variables and a set of 22 information sources (Table 7), which users had rated in terms of ease/difficulty in finding the information they needed in these sources. In this analysis there were three canonical roots significant at or beyond the .01 level.

The first canonical correlation (R = .75) is characterized by users who rate theses, conferences, textbooks, workshops, and AV media as relatively easy sources to obtain the information they need; while they rate face-to-face discussions and telephone conversations as difficult sources. These users tend to spontaneously pass information to a number of levels, and specifically to those at "lower," "higher," and the "same" level in their organization, to "colleagues" and "experts." They tend not to use information experts to search for them.

The second canonical (R = .69) characterizes users who report that meetings, journal articles, phone conversations, and information systems (ERIC) are difficult sources for them (but libraries and government publications are not difficult). These users tend to use the help of others to find information for them, but they also report relatively higher percentages of time giving information, and tend to give to "others" (than the named "levels"). Conversely, these users tend not to supervise many persons, and perhaps for this reason tend not to pass information to persons at "lower" levels and do not name persons at "lower" levels as coming to them for information.

The third canonical (R = .66) is characterized by users who find suppliers' catalogs, workshops and courses, and information centers relatively difficult sources for the information they need. Conversely, they report correspondence and newsletters as easy sources. These users report larger numbers of persons coming to them, more types of "levels" coming, especially "colleagues" and "experts"; they also tend to pass information on to "colleagues" and "experts." But they do not tend to give information to persons at "lower" levels, tend not to ask others to help them find information, and tend to supervise fewer persons.

Again, these results are to be considered tentative, but they obviously suggest that there are relationships between where a person stands ("sociometrically") in an information network of persons (as a provider of information to others) and the sources of information which the person uses.

E. PREDICTION OF EASE OF USE OF SOURCES

1. CANONICAL CORRELATIONS

In this section we explore the joint use of all the "left hand" types of variables displayed in the Education Information Use Model (Figure 1, page I-2) as predictors of sources used, namely: (1) context, (2) position, (3) person, and (4) information resources. Context is represented by a "location" variable (population density) and several dummy variables categorizing "organization" type (LEA, SEA, university, legislature). Position is represented by several dummy variables characterizing type of position (instructional, administrative, policy-making, research and information dissemination, special interest) and level of educational concern (elementary, secondary, post secondary). Person variables include: sex, age, degree, and time in present type of work, organization, and position. Information resources is represented by one variable: estimated size of organizational budget available to user for information needs.

These predictor variables were employed in a canonical analysis with the users' ratings of difficulties in obtaining the information they needed from 22 information sources as the criterion set.

Four significant canonical functions were found. The first, accounting for 48 percent of the total interset relationship between predictors and sources (P = .0026), is identified in Table 26 as an opposition of (a) university-based users, or users in research and information or special interest positions, and with female, minority, or higher degree personal characteristics, and (b) legislature-based users, or users in policy positions, older users, or users with elementary or secondary education concerns. The former group (when compared to the latter) finds textbooks, journal articles, and abstracts, indexes, and bibliographies as easier* sources to find information; while meetings, private correspondence, telephone calls, personal notes and files, and government publications are relatively difficult sources to find information. (Conversely,

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* Signs of loadings for sources in Tables 26-29 are the opposite of predictor signs since sources were rated for "difficulty."

Table 26. Predictor and Information Source Variables With Substantial Loadings on the First Canonical Variable (N = 137) (Canonical Correlation = .69)

Predictors		Sources	
University (Organization)	.46	Textbooks	-.36
R&ID (Position)	.34	Journal Articles	-.29
Minority (Person)	.33	Abstract, Indexes, Bibliographies	-.18
Higher Degree (Person)	.27		
Female (Person)	.21		
Special Interest (Position)	.20		
***		***	
Older Age (Person)	-.19	Government Publications	.21
Secondary Level (Concern)	-.26	Personal Notes, Files	.28
Elementary Level (Concern)	-.30	Telephone Calls	.36
Legislature (Organization)	-.41	Private Correspondence	.47
Policy (Position)	-.60	Meetings	.72

users who are in policy positions, in legislatures, who are older, or who have elementary or secondary education concerns may find meetings an especially easy source. They also tend to use correspondence, calls, personal files, and government publications, but find textbooks, journal articles, and abstracts, indexes and bibliographies difficult sources.)

Table 27 characterizes the second canonical (45 percent of total interset relationship, P = .0006). This canonical opposes (a) university-based users, users in research and information dissemination positions, users whose orgnaizations provide relatively large budgets, and users with higher degrees, or post secondary concerns, and (b) users in LEAs, in instructional positions, users who have spent a relatively long time in their current type of work or who have elementary education concerns. The latter group (as compared to the former) find meetings, courses, suppliers' catalogs, personal files, and AV media easy sources, but telephone calls and information systems are more difficult sources. (Ability to use the telephone to reach persons with needed information or to use ERIC or similar systems seems to go with being in research or information positions, having a sizable budget, being university-based, or having advanced degrees.)

The third canonical, accounting for 42 percent of the total interset relationship between predictors and sources (p = .012) is identified in Table 28 as an opposition of (a) users in SEAs, users with relatively high organizational budgets for information needs, and users in administrative positions, and (b) users with post secondary education concerns, and often in university or college organizations, users in special interest or policy positions, and users with higher degrees, longer time in their current type of work, or members of minority groups. The latter group (compared to the former group) displays a highly "print prone" formal information sources "style," finding government publications, unpublished papers, theses and dissertations, information analysis products, abstracts, indexes and bibliographies, libraries, textbooks, and journal articles relatively "easy" sources for finding the information they need, while newsletters, bulletins, and announcements, telephone calls and information systems are relatively hard sources. Again, note carefully the converse; users in SEAs, in administrative positions, and those with higher information budgets find newsletters, etc., telephone calls, and information systems "easier," but all the formal documentary sources (where they must dig

Table 27. **Predictor and Information Source Variables With Substantial** Loadings on the Second Canonical Variable (N = 137) (Canonical Correlation = .67)

Predictors		Sources	
R&ID (Position	.45	Telephone Calls	-.18
University (Organization)	.32	Information Systems (ERIC)	-.16
High Organizational Budget for Information Needs (Information Resources)	.30		
Higher Degree (Person)	.25		
Post Secondary (Concern)	.21		
***		***	
Elementary Level (Concern)	-.31	Audio-Visual Media	.17
Longer Time in Type of Work (Person)	-.34	Personal Notes, Files	.20
		Suppliers' Catalogs	.40
LEA (Organization)	-.42	Courses, Workshops	.55
Instructional (Position)	-.48	Meetings	.56

Table 28. Predictor and Information Source Variables With Substantial Loadings on the Third Canonical Variable (N = 137) (Canonical Correlation = .65)

Predictors		Sources	
SEA (Organization)	.44	Newsletters, Bulletins, and Announcements	-.26
High Organization Budget for Information Needs (Information Resources)	.40	Telephone Calls	-.23
Administrative (Position)	.28	Information Systems (ERIC)	-.20
***		***	
University (Organization)	-.22	Journal Articles	.18
Higher Degree (Person)	-.22	Textbooks	.19
Policy (Position)	-.24	Libraries	.19
Time in Type of Work (Person)	-.24	Abstracts, Indexes, and Bibliographies	.23
Minority (Person)	-.28	Information Analysis Products	.28
Legislature (Organization)	-.32	Theses, Dissertations	.35
Special Interest (Position)	-.44	Unpublished Papers and Technical Reports	.48
Post Secondary (Concern)	-.51	Government Publications	.53

the information out themselves) as relatively hard sources. (Note also the similarity of the top sources in Tables 27 and 28. Telephone calls and information systems appear on both lists and tend to be associated with users who have relatively high organization information budgets and users who probably have numerous external contacts.)

The last significant canonical (Table 29) accounts for 37 percent of the total interset relationship between the predictors and information sources (P = .048). It opposes (a) users in SEAs, users with elementary education, and to a lesser degree users with secondary education concerns, users in research and information dissemination positions, and users in high population density areas, and (b) users in instructional positions, and users in LEAs. The former group finds information analysis products, face-to-face discussions, and personal files easier, and suppliers' catalogs, government publications, theses and dissertations, newsletters, textbooks, and AV media relatively more difficult.

To summarize, the canonical analysis produced four separate, significant patterns of relationships between the predictors (organizational context, position, person, information resources) and the criterion set of ratings of ease/difficulty in obtaining information from information sources. Because each canonical function tends to be bipolar, four pairs of types of users were identified with each pair contrasted in their opposed ratings of relative ease/difficulty of using various sources.

Although some of the clusters of products appear familiar, the picture of the users in these various canonicals is much more complex than we have seen thus far in our series of analyses.*

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* Earlier in this report results of a multiple discriminant function analysis based on discrimination among ten groups of subaudiences in terms of the same set of "ease/difficulty" ratings of information sources were presented. Three discriminant functions were significant at the .05 level. Because position and organization tend to define the discriminant groups, there are some similarities in the two kinds of analyses. However, the canonical analysis adds predictive information concerning a number of variables, especially those dealing with personal characteristics, information budgets, population density, and multiple characteristics of positions (e.g., instructional and administrative) which were not present in the discriminant analysis.

Table 29. Predictor and Information Source Variables With Substantial Loadings on the Fourth Canonical Variable (N = 137) (Canonical Correlation = .61)

Predictors		Sources	
Elementary Level (Concern)	.52	Information Analysis Products	-.30
SEA (Organization)	.45	Face-to-Face Discussions	-.29
High Population Density (Context)	.35	Personal Notes, Files	-.26
Secondary Level (Concern)	.26		
R&ID (Position)	.24		
***		***	
		Audio-Visual Media	.20
		Textbooks	.22
		Newsletters, Bulletins, and Announcements	.24
		Theses, Dissertations	.29
LEA (Organization)	-.29	Government Publications	.46
Instructional (Position)	-.40	Suppliers' Catalogs	.50

2. REGRESSION ANALYSES

Other Sets of Variables as Predictors. In the previous section, it has been demonstrated with canonical correlations that context, position, person, sociometric, and purposes characteristics of users are indeed related to how easy or difficult they find sources to use. Whereas canonical correlations demonstrate relations between sets of predictors (context, position, person, etc.) and sets of predicted variables (i.e., several sources), regression analysis determines the relationship between a set of predictors and one predicted variable. Regression analysis is useful, then, in determining how well the ease of use of particular sources can be predicted by characteristics of users. Regression analysis can also determine which characteristics by themselves are the best predictors and how the characteristics may be considered jointly to provide the best possible prediction.

The user characteristics selected to be predictors in the regression analyses represented the major variables in the Education Information Use Model (Figure 1, page I-2): organization/context, position, person, sociometric, and purposes for seeking information. Organization/context was represented by the organization type (LEA, SEA, University, or Legislative Body), the educational level of the job focus (elementary, secondary, or post secondary), and the population density of the community in which the job is set. Job function type (instruction, administration, policy-making, research and information, special interest) represented position. Sex, degree level, minority/majority status, and months in work represented the person variables. There were four sociometric variables: the number of levels of people (e.g., higher, lower, colleagues) coming to the user for information, the number of levels of people to whom the user gives information, the number of people who come to the user for information per year, and the percent of work time the user spends giving out information. Of the 19 purposes included in the field interview on the question about frequency of purposes for seeking information, 12 were selected to be included as predictors in the regression analyses. The sources which were selected demonstrated the highest and most frequent canonical correlations with ease of use of sources and represented all eight of the factors identified by factor analysis of the ease of use of sources data.

Since information relevant to the different types of predictors differs in how easily or cheaply it may be obtained, it would be interesting and important to know if the more easily obtainable information (e.g., organization/context, position) can predict ease of use of sources well or whether information more difficult to obtain (e.g., sociometric or purposes) must be used to obtain effective predictions. Regression analysis can be used to determine how much predictive ability is lost when certain types of predictors are removed from the set of predictor variables. For example, a regression model using all five types of predictors (i.e., organization/context, position, person, sociometric, and purposes) to predict ease of use of journal articles can be compared to a regression model with the predictor type most difficult to obtain information about (i.e., purposes for seeking information) removed from the predictor set. It can be determined whether the difference between the ability to predict ease of use of journal articles by the two models (with and without purposes) is statistically significant.

Of the 22 sources of information included in the question about ease of use, eight were selected for use in the regression analysis: face-to-face discussions; telephone calls; theses; suppliers' catalogs; journal articles and reprints; abstracts, indexes, and bibliographies; government publications; national information systems (ERIC, NTIS). These particular sources were selected because (a) they appeared frequently with substantial loadings in the canonical analyses, and (b) they represented the full range of informal, semi-formal, and formal sources.

The results from the regression analysis are summarized in Tables 30 and 31. Table 30 indicates the relationships between the various types of predictors (and combinations of those predictors) and the ease of use of the sources selected for analysis. Each predictor by source cell has three numbers: R, R^2, and p(f). "R" is the multiple correlation between the indicated predictor or comination of predictors and the ease of use of the designated sources. "R^2", which is the square of that correlation, has special significance--it represents the "percent of variance" in ease of use of source accounted for by the predictor. Thus, the R^2 of .21 between "theses" and "purposes" means that 21 percent of the variation from person to person on ease of using theses as sources of information is due to the differences between those

Table 30. Relationships Between Types of User Characteristics and Ease of Use of Sources (N = 137)

Predictors: Types of User Characteristics		Sources: Ease of Use a Face-to-face Discussions	 b Telephone Calls	 c Theses Disser- tations	 d Suppliers' Catalogs	 e Journal Articles and Reprints	 f Government Publications
1 Organization/ Context	R	.30	.29	.33	.41	.23	.40
	R^2	.09	.08	.11	.16	.05	.16
	p(F)	.13	.17	.05*	.003*	.51	.003*
2 Position	R	.26	.33	.23	.47	.26	.39
	R^2	.07	.11	.05	.22	.07	.15
	p(F)	.11	.008*	.19	.0009*	.11	.001*
3 Person	R	.09	.22	.24	.08	.27	.22
	R^2	.01	.05	.06	.006	.07	.05
	p(F)	.88	.17	.09	.93	.03*	.16
4 Sociometric	R	.15	.21	.27	.25	.06	.05
	R^2	.02	.05	.07	.06	.004	.003
	p(F)	.53	.18	.04*	.06	.96	.98
5 Purposes	R	.36	.44	.46	.36	.43	.31
	R^2	.13	.19	.21	.13	.19	.10
	p(F)	.12	.005*	.003*	.12	.008*	.37
6 Organization/ Context + Position	R	.35	.38	.38	.54	.31	.48
	R^2	.12	.15	.15	.29	.09	.23
	p(F)	.22	.08	.10	.0001*	.54	.001*
7 Organization/ Context + Person	R	.30	.35	.40	.41	.34	.46
	R^2	.09	.12	.16	.17	.12	.21
	p(F)	.41	.15	.03*	.02*	.17	.002*
8 Organization/ Context + Sociometric	R	.33	.33	.42	.44	.24	.41
	R^2	.11	.11	.18	.19	.06	.17
	p(F)	.22	.27	.01*	.007	.83	.02*
9 Organization/ Context + Purposes	R	.49	.53	.56	.47	.48	.54
	R^2	.24	.28	.31	.22	.23	.29
	p(F)	.03*	.004*	.001*	.05*	.03*	.002*
10 Position + Person	R	.27	.38	.35	.48	.33	.44
	R^2	.07	.15	.12	.23	.11	.19
	p(F)	.37	.01*	.04*	.0002*	.08	.001*
11 Position + Sociometric	R	.29	.36	.37	.50	.26	.40
	R^2	.08	.13	.14	.25	.07	.16
	p(F)	.25	.03*	.02*	.0001*	.42	.006*
12 Position + Purposes	R	.44	.52	.49	.50	.47	.51
	R^2	.20	.27	.24	.25	.22	.26
	p(F)	.05*	.002*	.007*	.003*	.01*	.003*
13 Person + Sociometric	R	.19	.29	.33	.27	.29	.24
	R^2	.04	.08	.11	.07	.09	.06
	p(F)	.77	.18	.05*	.25	.15	.55
14 Person + Purposes	R	.37	.48	.49	.39	.47	.36
	R^2	.14	.23	.24	.15	.22	.13
	p(F)	.27	.007*	.003*	.18	.01*	.33
15 Sociometric + Purposes	R	.42	.48	.48	.41	.46	.33
	R^2	.18	.23	.29	.17	.21	.11
	p(F)	.07	.007*	.006*	.10	.02*	.51
16 Full Model: Organ./Context + Position + Person + Socio + Purposes	R	.57	.61	.62	.61	.55	.64
	R^2	.32	.37	.39	.37	.30	.42
	p(F)	.06*	.008*	.005*	.01*	.13	.001*

Table 31. Significance Level of Differences Between Predictions of Ease of Use of Sources by Full Model and by Reduced Models

Variables Removed From Full Model	Sources: Ease of Use a Face-to-Face Discussions	b Phone Calls	c Theses	d Catalogs	e Journal Articles	f Government Publications
1 Organization/ Context	.23	.30	.29	.21	.88	.02*
2 Position	.41	.14	.24	.005*	.90	.06
3 Person	.99	.27	.54	.76	.32	.09
4 Sociometric	.12	.68	.37	.68	.58	.38
5 Purposes	.01*	.008*	.04*	.92	.05*	.05*
6 Sociometric + Purposes	.03*	.02*	.01*	.82	.11	.08
7 Organization/Context + Position + Purpose	.20	.15	.10	.02*	.83	.0003*
8 Organization/Context + Position + Sociometric	.06	.14	.14	.01*	.80	.001*
9 Organization/Context + Position + Purposes	.03*	.01*	.01*	.01*	.20	.001*
10 Organization/Context + Person + Sociometric	.28	.34	.09	.32	.79	.04*
11 Organization/Context + Person + Purposes	.07	.04*	.03*	.72	.11	.02*
12 Organization/Context + Sociometric + Purposes	.05*	.06	.02*	.57	.28	.04*
13 Position + Person + Sociometric	.44	.25	.42	.04*	.67	.07
14 Position + Person + Purposes	.08	.007*	.05*	.15	.04*	.008*
15 Position + Sociometric + Purposes	.04*	.01*	.02*	.07	.20	.04*
16 Person + Sociometric + Purposes	.08	.02*	.009*	.91	.09	.06
17 Organ./Context + Position + Person + Sociometric	.12	.12	.12	.02*	.72	.001*
18 Position + Person + Sociometric + Purposes	.11	.01*	.01*	.16	.09	.02*
19 Organ./Context + Pos. + Person + Socio. + Purposes	.06	.008*	.005*	.01*	.13	.001*

people's purposes in seeking information. "p(F)" is another indication of whether the ease of use of source can be predicted by the indicated types of user characteristics, for p(F) is the probability (the statistical significance) that the predictive ability of the indicated predictors is due to chance. Thus, the p(F) of .003 for this same relation (purposes as predictors of ease of use of theses) indicates that with a probability of 3/1000 the result would be due to chance. This means that, with a high probability, having information on just purpose variables will allow better prediction of ease of use of theses than having no such information. (Those cases in which user characteristics have a high probability of being able to predict ease of use of sources, i.e., where p(F) is .05 or less, have been marked with an asterisk to make quick interpretation of the table easier.)

The first thing to notice in Table 30 is that two of the sources we examined (abstracts and national information systems) are not included. This is because neither of these sources was strongly correlated with or predicted by any of the types of user characteristics. Even when information about all five types of user characteristics is used together, the prediction of ease of use of either of these two sources is not significantly better than a prediction based only on chance. It can be seen for the "Full Model" row (row 16) in Table 30, however, that the five predictor types taken together are strongly related to the ease of use of each of the remaining 6 sources (R's = .57, .61, .62, .61, .55, .64) and that 30-40 percent of the variability of ease of use here is due to variability on these five user characteristic types.* Since strong relationships between purposes and sources have already been demonstrated, it might be thought that most of this predictive power is due to the purposes-sources relationship; however, it can be seen in rows 1-4 that the other four user characteristic types significantly predict ease of use for at least one and for as many as three sources. In fact, a comparison of the R's and p(F)'s in rows 1 and 2 with those in row 5 shows that organization/context and position are almost as strongly correlated with and predictive of ease of use of sources as is purposes. This is especially interesting since information about organization/context and position is easily obtained (probably from job title and location), while obtaining information about purposes requires individual questioning. Despite this predictive strength of organization/context and position, it can be seen from rows 9 and 12 that purposes provides additional and somewhat independent predictive power, for when purposes is used in conjunction with either organization/context (row 9) or position (row 12), the correlations with sources are greater than with either predictor alone, and prediction of all six sources is significant. Sociometric and person variables are not very strongly related to ease of use for most of the six sources, but they do add something to the prediction of sources, for the correlations between predictors and sources when all five types of predictors are used together are somewhat higher than when sociometric and person variables are omitted. Despite the significance of prediction using all five types of predictors, it should be remembered that the R^2's range from .30 to .42, which means that 58-70 percent of the variance is ease of use sources is not due to variance in the user characteristics included as predictors in the regression analyses.*

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* In almost all cases the probability that user characteristics taken together predict ease of use of sources is extremely high (especially for government publications p(F) = .001, theses p(F) = .005, and telephone calls p(F) = .008).

By observing the columns in Table 30, it is interesting to note that user characteristics are much more strongly related to ease of use of some sources than others. The ease of using theses, suppliers' catalogs, government publications, and telephone calls is predicted by user characterisitics much more readily than is the ease of using face-to-face discussions and journal articles (and abstracts and national information systems which are not predictable at all).

Individual predictor by source cells may prove interesting to the reader. For example, whereas organization/context and position are strongly related to and predictive of ease of using government publications (cells 1f and 2f respectively), purposes (cell 5f) does not significantly predict ease of their use. The reader may want to explore individual cell results, keeping in mind that the top number is the correlation between the indicated predictors and source, the middle number is the square of the correlation which indicates the percent of variation in ease of use of source due to variation in user characteristics, and the bottom number is the probability that the prediction of ease of use of source is due to chance rather than to an actual relationship between source and user characteristic.

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* It must be recalled that a relatively large number of predictor variables were employed in the full model to predict criteria based on a non-random sample of only 137 cases. We would anticipate substantial "shrinkage" on cross validation.

Table 31 is similar to Table 30, but it conveys slightly different information. The numbers in the table indicate the probability that the difference between the power to predict ease of use of the indicated source by the full model (using all five types of predictors together) and a reduced model in which the indicated type(s) of predictor(s) has been removed is due to chance. Thus, a low probability (those .05 or less have been starred for easy interpretation) indicates that the type(s) of user characteristics indicated (which were removed from the model) were making significant contributions to ease of use of the indicated source independent of what the other types of characteristics were contributing. For example, in column (F) it can be seen that when organization/context is removed from the full model (cell 1F), the adequacy of prediction of ease of use of government publications is significantly reduced (the probability that this reduction was just due to chance is only .02). Inspection of cells 2F, 3F, 4F, and 5F indicates that all the predictor types except for sociometric (probability = .38) are making substantial independent contributions to the prediction of ease of use of government publications. The other cells in column F indicate, as would be expected, that removal of any combination of the predictors from the full model also reduces the predictive power significantly. Used in conjunction with the information in Table 30, this would suggest that all types of user characteristics information except sociometric would be useful in predicting ease of use of government publications, but that organization/context and purposes together (Table 30, cell 9f) would probably be the most important information to obtain if information of only a few types could be obtained. However, if purposes information was not feasible to obtain, organization/context, position, and person information taken together (Table 31, cell 7F) would be almost as useful in prediction.

Looking across rows, it can be seen that purposes makes the strongest independent contribution to predicting ease of use of most sources, though it probably makes no such contribution to the prediction of ease of use of suppliers' catalogs. The other types of predictors seldom make strong indepedent contributions to predictions, but there are exceptions for a few sources. Again, removal of any of the predictor sets individually or in combination did not significantly decrease the power to predict ease of use of abstracts or national information systems. Consequently these data are not reported.

These regression analyses have indicated that the ease of use of most of the sources selected for analysis is correlated with and can be predicted to some extent by using information about users, though prediction of ease of use of national information systems such as ERIC and of abstracts, bibliographies, and indexes is very poor even when all user characteristics are taken together as predictors. It should be remembered that most of the eight sources selected as criteria in the regression analyses were selected as the most likely to be predictable. The most effective predictors are purposes for seeking information, organization type and context, and job function--the latter two being relatively easy to obtain information about. Sociometric information and person characteristics don't seem to be strong predictors of ease of use of sources, though they do improve prediction when they are added to the other predictors.

Sex, Age, and Geographic Location as Predictors. NIE has expressed particular interest in three person characteristics: sex, age, and geographic location. Since the regression analyses already reported did not look at predictive power of these variables separately (and did not consider age and geographic location at all), additional regression analyses were done to test the predictive power of each of these variables independent of organization/context and position characteristics. Four sources which had the highest correlations with sex, age, and geographic locations were selected as criteria for the analyses: theses, government publications, journal articles and reprints, and information centers. As can be seen in Table 32, removal of any of the three person characteristics individually or in combination had very little effect on the predictive power of the model, though age probably had the most effect. This indicates that the relatively easily obtainable information about age, sex, and geographic location accounts for little of the variation in ease of use of sources beyond that already accounted for by information (also easily obtainable) about job organization types and context and job function.

Table 32. Significance Level of Differences Between Predictions of Ease of Use of Sources by Full Model and by Reduced Models (Analysis of the Effect of Sex, Age, and Geographic Location)

Variables Removed From Full Model*	Sources: Ease of Use			
	Theses	Government Publications	Journals	Information Centers
Sex	.80	.95	.51	.16
Age	.74	.13	.07	.21
Geographic Location	.10	.58	.96	.92
Sex & Locations	.18	.59	.95	.63
Age & Locations	.18	.37	.54	.70

Although only a few sources are considered here, none of these regression analyses indicate that sex or geographic location is an important predictor of difficulty of use of these sources when other user characteristics are also considered. Since age may have some predictive power, the influence of this variable will be examined more extensively in the analysis of the mail survey.

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* Full model consists of organization/context, position, sex, age, and geographic locations.

F. TYPING PERSONS ACCORDING TO SIMILARITIES IN INFORMATION USE CHARACTERISTICS

Analyses already discussed have demonstrated that there are significant relationships between various characteristics of users (e.g., organization type and context, job function) and their purposes for seeking information as well as how easy or difficult they find particular sources of information to use. Several interesting questions remain, however, concerning the relationships between types of users and information use characteristics. Are there distinct patterns of purposes or ease of use of source that characterize different groups of users? Are these groups of users clearly identifiable by position or job function or are they a mixture of job types? Are there particular purposes or sources that differentiate groups of users more than others?

1. HIERARCHICAL GROUPING

One way of trying to answer these questions is by factor analysis of people according to their purposes or ease of use of sources. This technique, called a Q-method or inverted factor analysis, yields factors consisting of people who tend to be similar in their patterns of scores (in this case, the scores would be frequency of different purposes or ease of use of different sources). This method was attempted, but the resulting factors were not clearly interpretable, so we tried another, somewhat similar method of analysis to see if the information yielded would be more interpretable. A hierarchical grouping analysis was used to determine natural groups among people according to their similarities and differences in purposes for seeking information. A second such analysis was done to determine groups according to ease of use of sources. The H-group analysis begins with individuals and then progressively combines them into groups that are most similar to each other in terms of the (standardized) score differences on a set of variables until all the people are arranged in only two groups. After looking at the entire sequence of progressive groupings, we chose to focus on that level of grouping which had a moderate number of groups (approximately 7 or 8) and which resulted in a substantial increase in error when any of those groups were combined. Due to limitations in the capacity of the computer program, the total sample of users had to be divided roughly in half for two separate analyses. In one analysis, we included the practitioners (teachers, principals, other instructional staff), administrators (school district staff, intermediate unit staff, state education agency staff), state and local school board members, and college faculty and chief administrators. The other analysis included the rest of the sample (legislative aides, researchers, information specialists, and special interest groups). There were, then, four H-group analyses: one for each half of the sample for each of the two criteria for grouping--*purposes* and *sources*.

These analyses demonstrated that the group determined by similarities of *purposes* or *sources* were, in most cases, *not* clearly identifiable in terms of subaudience membership alone. In most cases, groups consisted of users from several different job types. In only a few instances did groups consist primarily of one type of job (e.g., teachers or school administrators), and in these instances, the groups were most often formed on the basis of purpose rather than source similarities and differences. This suggests that though there may be distinct patterns of purposes for and sources of information that characterize people, the people that tend to use similar patterns are not necessarily in the same types of jobs or positions. Rather, patterns of information use may frequently be more a matter of personal style.

2. MULTIPLE DISCRIMINANT ANALYSIS

In order to determine what these patterns of *purposes* and *sources* are and what particular *purposes* and *sources* tend to differentiate groups of people the most, we used multiple discriminant analyses. This procedure enabled us to determine which particular *purposes* and *sources* were significantly different between the groups of users created in the previous H-group analyses. Also, examination of means for frequency of purposes and ease of use of sources for those different groups enabled us to identify patterns of purposes and sources which characterized those groups.

The discriminant analyses revealed that for groups determined by H-group analysis on the basis of frequency of purposes: (a) the groups in the special interest and research half of the sample differed significantly on all the purposes and on three sources (textbooks, information centers, and library facilities); and (b) the groups in the practitioner and administrator half of the sample differed on all the purposes except "identifying new materials, methods, or procedures," "evaluating an educational practice or product," and "providing information to others," and differed on two sources (textbooks and theses). For the groups determined by H-group analysis on the basis of ease of use of sources: (a) the group in the special interest and research half of the sample differed significantly on all the sources and none of the purposes, and (b) the groups in the practitioner and administrator half of the sample differed on all but one source (personal notes and files) and differed on two purposes ("identifying new sources of assistance for improving my work" and "providing information to others"). So, for the most part, differences on all the purposes or sources contribute to the determination of groups based on purpose or source differences respectively. Rarely do groups formed on the basis of differences in purpose differ in ease of use of sources, and rarely do groups formed on the basis of differences in ease of use of sources differ on purposes.

Examination of the profiles of group means for ratings of frequency of purposes and ease of use of sources reveals certain interesting patterns of information use that do characterize those groups. Probably the most expected finding is that the group formed on the basis of purpose similarities consisting primarily of teachers differs from the other groups in that "preparing teaching materials," "brushing up on old specialties," and "learning new specialties" are frequent purposes and textbooks are found to be very easy to use. Similarly, a group consisting primarily of school board members is characterized by frequent "making or setting policy" and "making decisions about educational practice or products" purposes. Most other distinct patterns of purpose and source are not easily related to the job type composition of the group characterized by that pattern, but may be interesting to the reader as tentative findings relative to patterns of purposes and/or sources that are shared by some people and distinguish them from other people.

The following patterns (profiles) of ratings of frequency of purposes seem to be identifiable:

(a) "Providing information to others" is the only purpose rated as very frequent; all others are infrequent. This pattern is shared by several information specialists and special interest group members but does not characterize any particular type of position. These are the information distributors rather than information "users."

(b) "Acquiring ideas for my work" is the only purpose rated as very frequent; all others are relatively infrequent. This group is also distinguished by its ratings of textbooks and libraries as sources very easy to use. This pattern is shared by a few people in instructional positions, though they rate "preparing or planning teaching/classroom materials" as only moderately frequent.

(c) "Keeping aware of developments in education," "keeping aware of who is working in specific subject or problem areas," "making decisions about educational practice or products," and "making or setting policy" are purposes rated very frequent. This would seem to be an administrative orientation to information use, but many people in a wide variety of positions (including special interest groups, legislative aides, information specialists, and scientists) share this pattern.

(d) "Finding answers to specific questions related to my work" is rated as a very frequent purpose, while "gaining theoretical information" and "keeping aware of who is working in specific subject or problem areas" are rated as very infrequent purposes. This would seem to be a practically oriented, somewhat insulated pattern of use. It is shared mostly by practitioners of various types.

The following patterns (profiles) of ratings of ease of use of sources seem to be identifiable:

(a) All sources are rated as very easy to use. This pattern seems to be shared by various special interest group members and by certain legislative aides.

(b) All the "personal" sources (i.e., personal notes, face-to-face discussions, mail, telephone, and meetings) are rated as easy to use, while almost all of the semi-formal and formal sources except mass media, newsletters, government publications, and libraries are rated as difficult to use. This would seem to be the public relations type of pattern of information use and is shared by some of the state and federal legislative aides.

(c) All the personal sources are rated as very easy to use and none of the semi-formal and formal sources are so rated. This "personal contact" pattern is shared by many people, most of whom are in some kind of administrative position.

(d) All formal and informal sources except national information systems (such as ERIC) and technical reports are rated as easy to use, while the personal sources of private correspondence and meetings are rated difficult to use. This more formal, impersonal pattern is shared by a few scientists and special interest group members.

It can be seen that the interpretation of the patterns and characterization of users of such patterns are highly speculative, but if information use can be differentiated by patterns like these, such speculation may be useful for further study attempting to identify or validate information use patterns.

V. CONCLUSION

Analyses of the data from the field interviews have strongly suggested that there are many significant differences among education information subaudiences in their purposes for seeking information, the sources they use, the search strategies they employ, the results they obtain (success/difficulty), what they do with the information they obtain, their propensity to spontaneously provide obtained information to others, and the numbers and types of persons who come to them for information.

Although there are differences among subaudiences, the Education Information Use Model suggests that patterns of information use (needs, sources used, search strategy, outcomes) are multiply determined and that information going beyond an audience typology may be employed effectively to identify and describe various education information "markets." The series of canonical correlation analyses amply demonstrated that context, position, person, and information resources are indeed related to sociometric and purpose variables and that all these sets of variables, taken one or more at a time, are significantly related to data concerning sources used/preferred.

Regression analyses also suggest that ease of use of most sources is correlated with and can be predicted to some extent by information about users, though prediction of some of the sources (e.g., national information systems such as ERIC) is poor even when all user characteristic variables are taken together as predictors. The most effective predictors of ease of use of sources are purposes for seeking information, organization type and context, and position. Sociometric and person variables do not seem to be strong predictors, though they do improve prediction when they are added to the other predictors.

Hierarchical grouping analysis and multiple discriminant analysis of the groups so created have indicated that information users can be grouped according to distinct patterns of purposes for seeking information and/or ease of use of sources used. However, although other analyses demonstrated substantial relationships between job type or characteristics (position and context) and purposes and sources, these last analyses found that groups formed statistically on the basis of similar patterns of information use were seldom the same as groups formed on the basis of position similarities. Particular patterns of purposes or sources seem to be shared by people from a wide variety of jobs or positions, and only some of the people within a particular job type or position seem to have the same pattern. It would seem, then, that patterns of information use may be as much personal styles as they are requisites or consequences of the user's job or position. This could be a very important finding with significant implications. If people can be characterized by information use patterns, but great differences in such patterns exist within job types or positions, it would be important to conduct further research to: (1) validate such patterns; and (2) discover characteristics of people which can be used to predict their information use pattern. It should be remembered that the results of this study are based on small, non-random samples, so that the conclusions about patterns of information use and their distribution are only suggestive. However, the conclusions are intriguing enough, we think, to warrant further study.

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VOLUME II

A MAIL SURVEY OF USER INFORMATION REQUIREMENTS

Paul D. Hood
Far West Laboratory for Educational Research and Development

With

Colin Mick
Applied Communication Research

And

Robert V. Katter
System Development Corporation

The opinions expressed in this document do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the National Institute of Education should be inferred.

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FOREWORD

This study was performed by the Far West Laboratory for Educational Research and Development as a subcontractor to the System Development Corporation under Contract Number NIE-C-74-0099 with the National Institute of Education, U.S. Department of Health, Education, and Welfare. Although led by the Far West Laboratory, the Educational Information Market Study was a joint effort involving staff of the System Development Corporation (SDC), Applied Communication Research (ACR), and the Far West Laboratory as contractors, and the staff and consultants of the Information and Communication Systems Division, Dissemination and Resources Group, of the National Institute of Education.

The mail survey was designed and supervised by Paul Hood. The following persons contributed to the questionnaire instrument, which went through several revisions:

SDC:	Karl Pearson, Cynthia Hull, Judith Wanger, Ann Luke
ACR:	Matilda Butler-Paisley, Colin Mick, William Paisley
NIE:	Samuel Rosenfeld, Mollie MacAdams, Thomas Clemens, Charles Haughey, Charles Hoover, Delmer Trester
NIE Consultants:	John Anthony, Rogers Barton, Joseph Becker, Gregory Benson, Donald Erickson, Lyle Lanier, Peter Rossi, Sam Sieber
Project Consultants:	Howard Freeman, Calvin Wright
FWL:	Paul Hood, Andrea Lash, Barbara Havassy, Nancy McCutchan.

The survey sampling design was prepared by Paul Hood. In this connection we especially acknowledge the advice of Sam Sieber and Howard Freeman. The sampling frames were created and the sample was drawn by SDC staff directed by Robert Katter and including William Gill and Cynthia Hull.

The project staff gratefully acknowledge the assistance provided by many state departments of education and intermediate and local education agencies; their assistance and cooperation in the sampling of practitioner and administrator

audiences was invaluable. Special mention is due Egon Guba and David Clark of Indiana University who provided valuable assistance in designing the sample for educational faculty. We also thank Patricia Stivers of the American Educational Research Association for her assistance in creating the social scientists sample and thank AERA for permission to use its membership data bank to draw this sample.

We gratefully acknowledge the assistance of the Association of Institutional Researchers in the use of their membership directory. The National Center for Educational Statistics, the Curriculum Information Center, the American Council on Education, and the National Institute of Education were also used as sources in the creation of sampling frames for various information user groups.

SDC staff supervised the mailing, follow-up, and processing of questionnaires including preparation of a machine-readable data file.

Colin Mick and Paul Hood were jointly responsible for data analysis. Colin Mick assumed the major role in setting up data files and carried out the statistical analyses at the Stanford University computer center. Supplementary analyses were conducted by Laird Blackwell at the Far West Laboratory computer center. Intermediate reports and the final report of the mail survey were written by Paul Hood. Mrs. Ursula Hoffman, Far West Laboratory, supervised the preparation of this report. Final editing and production was accomplished by Una Vere Katter, at System Development Corporation.

Finally, we thank the many persons who, by responding to the questionnaire, made this report possible.

CHAPTER I
EXECUTIVE SUMMARY

A. INTRODUCTION

This is Volume II of the Final Report of the Educational Information Market Study. This volume reports the final results of the mail survey portion of the study and further analyzes and summarizes the information previously supplied in the interim report on the mail survey, "Information Products and Services That Would be Most useful to Fourteen Target Audiences in the Field of Education."

Volume I of the Final Report, "Key Educational Information Users and Their Styles of Information Use," summarized the results of the analysis of field interviews that were conducted with a judgmentally-selected sample of 137 key persons, representing 17 different educational roles, and located in over 40 communities throughout the United States. The field survey was undertaken to develop an indepth understanding of user information needs, to develop and refine a conceptual framework and associated data-analytic methodology, and to provide the basis for the design of a comprehensive, nationwide probability sampling mail survey of all major types of users.

Volume II describes this mail survey design and presents the results. Interpretation of the data from this mail survey is related to the results of the previous field interview survey.

B. THE SAMPLE

Four major audiences (and 14 subaudiences) were identified: (1) elementary and secondary level public school practitioners (teachers, principals, other instructional and support staff), (2) elementary and secondary public education administrators and professional staff (local, intermediate, and state agencies), (3) higher education groups (chief administrators, institutional researchers, faculty of schools and colleges of education, social scientists), and

(4) governance groups (local school boards, state school boards, state legislators, U.S. Congressional aides). With the exception of U.S. Congressional aides, the planned sample aimed for a minimum of at least 50 responses for each of the 14 subaudiences and for approximately 200 responses for each of the three practitioner subaudiences (teachers, principals, other staff). An overall response rate of approximately 50 percent was achieved; however, response rates for subaudiences ranged from 23 percent for state legislators to 69 percent for higher education chief administrators. The usable sample contains 1,328 persons, including 602 school practitioners, 301 LEA, ISA, and SEA administrators and professional staff, 256 higher education staff, 131 school board members, and 38 legislators and aides.

C. THE QUESTIONNAIRE

Six versions of a seven-page instrument were created in order to tailor questions concerning (a) needs for information in broad subject areas, (b) work activities, and (c) people and organizations users turn to in seeking advice or information, to the special characteristics of (1) practitioners, (2) administrators, (3) higher education chiefs and institutional researchers, (4) educational faculty and social scientists, (5) school boards, and (6) legislators.

The questionnaire was organized in nine major sections dealing with questions: (1) about yourself and your work, (2) about the information sources you use in your most important work activities, (3) about the usefulness of the information sources you use, (4) about the most important characteristics of the information sources you prefer, (5) about your purposes for seeking information, (6) about your problems in acquiring and using information, (7) about the people and organizations you turn to, (8) about the information products and services that would be most useful to you, and (9) statistical data (age and degree attained).

D. SUMMARY OF RESULTS

1. OVERVIEW

The remaining chapters of this volume are organized basically in the same order as the sections of the questionnaire. The logic for this organization is that understanding of user information requirements should begin with an examination of the work activities of users and then progress to a consideration of sources used in connection with specific work activities. After consideration of uses of sources in terms of frequency and usefulness, users' reasons for selecting the sources they prefer are examined. Following these "linked" areas of investigation -- work activities related to use of sources; use of sources related to reasons for selecting them -- the line of investigation is redirected to general purposes for seeking information. Then come problems encountered in acquiring and using information and, finally, two more specific areas: first, the typical sequence users follow in seeking information from types of persons and organizations; and second, the type of products and services that would be most useful.

Although this order of presentation appeared to facilitate presentation of the survey results, it is not necessarily the order a reader may prefer to follow in examining portions of this report. One can, of course, skim or omit any numbered section, or merely use the following summaries.

2. DESCRIPTION OF THE MAIL SURVEY (CHAPTER II)

This chapter describes the user audiences which constituted the sampling populations of interest; describes the obtained sample in terms of two demographic variables -- age and education; outlines the survey design and sampling methods; outlines the complete content of the mail questionnaire; and describes the limitations of the survey. It is important at least to skim the contents of this chapter before reading any of the following chapters, since it spells out the definitions of the 14 subaudiences, the organization of the questionnaire, and some cautions regarding making inferences and generalizations; without that background one cannot interpret correctly the presentations in the following chapters.

Substantively, the data reported in this chapter indicate that the average age of the total sample is 44 years, with a range from an average of 34 years for U.S. Congressional aides to 52 years for state school board members. The average educational level is approximately equivalent to a master's degree, with a range from an average of 14.5 years of schooling for local school board members to 20.8 years for social scientists.

Because all subaudiences were randomly sampled, these and all other results of the mail survey are generalizable to the population they represent. But the overall attained response rate of 50 percent means that the findings may be biased and probably reflect the responses of the more "information prone" portion of each subaudience.

The reader is warned that almost none of the statistical tests of significance are exact and that, in general, the reported levels are too liberal. However, the reported levels of significance are usually so high that there is usually little doubt that the significant results reported would be confirmed with more exact tests of significance.

3. ABOUT YOURSELF AND YOUR WORK (CHAPTER III)

This unusually long and tedious chapter may be skimmed or skipped entirely by the casual reader, since similar, but not exactly comparable, information on work activities is presented in Chapter IV. However, the following points are worth noting.

The chapter presents data concerning the information content needs of four groups of subaudiences: (a) school board members, (b) education faculty and social scientists, (c) higher education chief administrators and institutional researchers, and (d) state legislators and U.S. Congressional aides. The content areas were specifically tailored to the general categories of content relevant to each of these four groups of subaudiences. Since few user needs studies have included these particular subaudiences, much of the information described in this section is new. It should be of special interest to those who are concerned with the substantive content of information files or services designed to serve any of these subaudiences.

Because elementary and secondary education practitioners and administrators have been repeatedly surveyed with generally consistent findings regarding their content needs, a briefer "warm-up" question concerning the amount and quality of information available to them was presented. No differences were found among the six practitioner and administrator subaudiences in their ratings of adequacy of either amount or quality of available information. The vast majority rated both amount and quality either adequate or very adequate.

The major portion of this chapter is concerned with the examination of the data about respondents' work activities and their special efforts to find information regarding those work activities. The results are arranged by the six forms (audiences): practitioners, elementary and secondary education administrators, higher education administrators, higher education faculty and social scientists, school board members, and legislators and aides. Within each of these six subsections four topics are considered: (a) important work activities, (b) special activities, (c) the relation between importance of an activity and effort to find information, and (d) patterns of work activities. With the exception of the legislative audience, where sample sizes are extremely small, there are numerous statistically, and usually practically, large differences in the work importance ratings among subaudiences within all other user audience groups. The results demonstrate that even when subaudiences are grouped by similarities in the nature of their work activities in education, major differences exist among subaudiences in their patterns of work activity; these differences should henceforth be considered in analyzing the information needs of each subaudience.

Activities entailing frequent efforts to search for information are identified and briefly described for each subaudience. Generally, there are somewhat fewer significant differences among subaudiences than were found for work importance ratings, but the total number of differences is quite large. In most cases, significant differences in effort to find information relating to a work activity are associated with comparable significant differences in subaudiences ratings of the importance of the activity, but the converse relation is not nearly so strong. These relations compare averages for subaudiences. When individual respondent data are considered (correlations between rating of importance of work activity and did/did not make special effort to find information), the correlations observed are usually of modest size, but the great majority are statistically significant; these findings confirm that amount of information seeking is related to type and importance of work activity. Although this finding may seem obvious, it is of substantial importance since examination of the relation of specific work activities to information needs has rarely, if ever, been undertaken in previous educational information needs surveys.

Because of the lack of previous information concerning the work activity of persons in education, each of the six different sets of work activity importance ratings were intercorrelated and factor analyzed to indicate the extent to which different activities were associated with one another. Typically five or six orthogonal (independent) factors extracted at least 60 percent of the covariation found within the set of 12 to 20 activity items appearing on each form, thus providing some evidence for at least moderate clustering of some items. In the case of the practitioner, the elementary and secondary education, and the higher education audience factor analyses, some remarkable similarities emerge: in each case a "program planning," a "management," and an "external relations" factor is identified. The analysis of the educational faculty and social scientists data indicate the existence of at least four identifiable factors: "management of research and evaluation," "performance of research and evaluation," "teaching," and "practice improvement."

4. ABOUT THE INFORMATION SOURCES YOU USE IN YOUR MOST IMPORTANT WORK ACTIVITY (CHAPTER IV)

A number of previous surveys of educational information users have asked users to identify or rate types of sources of information type use. In this section of the questionnaire, users' responses were referenced to frequency of use of sources in connection with the respondents' most important work activities. Since responses are associated with "most important" work activities, the first section of this chapter presents the work activity results (percentages of each subaudience selecting) based on the six different lists of activities. These results, discussed in some detail, may be summarized as follows: the majority of teachers, "other" school staff, educational faculty, and social scientists indicated that their most important activity was concerned with teaching and counseling students (and preparing lessons, lectures, etc.). Administrators (including school principals and higher education chief administrators) display remarkably more diversity. Determining needs, program planning, financial planning, resource allocation, and pupil personnel services are some of the more frequently mentioned "most important" activities. School board members are primarily concerned with studying problems or policy alternatives, and with studying specific board agenda items for intent or impact or for fiscal or legal implications. Some local board members are also concerned with budgets and with school system management policy. The great majority of state legislators and congressional aides are concerned with one of three activities: analyzing legislation for intent, impact, or effect; researching educational issues to determine needs, problems, or policy alternatives; and analyzing educational legislation for cost or other fiscal or legal implications.

Following the presentation of most important work activities of each subaudience, the chapter examines users' ratings of the frequency of use (often, sometimes, never) of each of 18 types of information sources in connection with the users' most important work activities. Although there are statistically significant differences among the subaudiences' averages (for frequency of use) on every one of the 18 information sources listed, it is possible to discern somewhat similar patterns of use among instructors (teachers, educational faculty, social scientists), among school-oriented audiences (teachers, principals, "other" school staff, LEA staff, ISA staff, and educational faculty), among administrators (school principals, LEA staff, ISA staff, higher education chief administrators), among higher education faculty (social scientists, education faculty), and possibly among the governance audiences. Instructional staff tend to be users of libraries, textbooks, and curriculum materials and relative non-users of interpersonal sources (face-to-face discussions and telephone calls). Administrators, by contrast, make substantial use of all interpersonal sources and are also heavy users of memos, correspondence, and own office and organization files. Social scientists are among the most frequent users of all bibliographic sources and references to bibliographic sources (own notes and files; libraries; textbooks and reference books; journals; and abstracts, indexes, and bibliographies). But these two subaudiences are among the least frequent users of office, department, or organization files. The governance audiences (board members, legislators, and aides) show the greatest (but not complete) similarity in sources not used frequently (e.g., abstracts, indexes and bibliographies; curriculum materials; personal library; and conventions and professional meetings). We thus see that major differences exist among various user groups in the sources they tend to use (or not use) in connection with their most important work activity.

Despite these major differences among users, there are some remarkable similarities. Generally, the local, easily accessible sources (people in own organization, notes and files in own office, personal library, journals, newsletters, memos, and correspondence) are the more frequently used sources. Contacts (face-to-face or by telephone) with people in other organizations follow, but they are midway down the list of 18 sources. Next come more formal information sources (library or resource center in own organization; office, department, or organization files). Conventions, professional association meetings; and workshops, seminars, and graduate courses are an adjacent pair of similar kinds of sources which are less frequently used. Textbooks and reference books, and curriculum materials are two types of sources which are frequently used by all subaudiences directly concerned with instruction, but are used far less frequently by other subaudiences. The last three types of sources (technical reports and government publications; other libraries, resource centers, or information services; and abstracts, indexes, and bibliographies) are used relatively less frequently by most user groups.

Following the question regarding frequency of use of information sources, respondents were asked about the length of time they could usually allow between realization of the need for information and actual receipt and use with respect to their two most important work activities. There were highly significant differences among the subaudiences in the amount of delay they can tolerate.

The small sample of federal legislative aides appears to need information most quickly; half of them indicate they can wait no longer than one day (in contrast to approximately 31 percent in the total sample). Generally, the various LEA subaudiences (teachers, principals, "other" staff, LEA administrators, and local school board members) are fairly similar; typically they can wait two or three days, but 15 to 21 percent of each of these LEA subaudiences can wait no more than a few hours, and only 18 percent or fewer of each LEA subaudience can wait "about two weeks" or longer. The SEA staff are very similar to the LEA subaudiences. State legislators can wait just a little longer; half can wait a week or longer, but 23 percent need information within a day of requesting it. The four higher education subaudiences seem to be able to wait longer than most other audiences. The majority of institutional researchers (54%), social scientists (52%), and educational faculty (56%) can wait about a week or longer, and 46% of the chief administrators can wait this long. However, about ten percent of each of these subaudiences need information within a few hours, and another nine percent (except four percent for institutional researchers) need information within one day. Intermediate service agency (ISA) staff are most similar to the higher education institutional researchers; nearly a fourth of both groups can wait about two weeks or longer, and approximately half can wait a week or longer. Only seven percent of the ISA staff need information within a few hours. State board members can tolerate the longest delays of all subaudiences. Only six percent require information within one day and 18 percent can wait more than 2 weeks.

Overall, about 30 percent of these users need information within one day, nearly the same proportion (29%) can wait two or three days, another fourth (24%) can wait about a week. However, only 16 percent can wait as long as or longer than two weeks. These data confirm that reasonably rapid response times are necessary for the majority of users if the information requested deals with important work activities. The relatively short response times suggest that mail exchange would be tolerable for only a small proportion of users, and that any kind of responsive information system needs to aim for an average response time of a day or two and certainly less than a week when dealing with priority requests. This suggests that most information sources must be local or accessible through telecommunication channels.

5. ABOUT THE USEFULNESS OF THE INFORMATION SOURCES YOU USE (CHAPTER V)

The previous chapter considered users' responses to a list of information sources in terms of how frequently they use these sources in connection with their most important work activities. This chapter focuses on the same list of 18 types of information sources rated in terms of usefulness in providing information needed for any part of the users' work. Despite three precautions (the instructions deliberately emphasized the contrast between usefulness for all activities and frequency of use for most important activities, the two questions were placed on the opposite side of the sheet from the spaces for responses and the rating scales were changed), virtually the same general information was obtained, at least with respect to item averages for subaudiences. The correlations between subaudience, across 18 information sources, for frequency of use (for most important activity) and usefulness (for all activities) are virtually perfect (.94 to .99) for each of the 14 subaudiences.

For this reason, the treatment of this data is brief. Instead, attention is directed to examination of intercorrelations among the ratings of the usefulness of the 18 sources and the possibility of deriving a smaller set of information source usefulness measures. Factor analysis of the 18 sources' usefulness ratings produced six factors, accounting for 63 percent of the covariance. The six factors were identified as: (1) formal print sources (e.g., libraries, abstracts, reference books); (2) informal, local sources (e.g., telephone, discussions face-to-face, files, memos); (3) external personal contacts; (4) current print sources (e.g., newsletters, journals); (5) professional instructional awareness and knowledge sources (e.g., conventions, workshops, curriculum materials, journals, textbooks); and (6) personal sources (e.g., personal files and personal library).

A final section of this chapter describes several information source use "indexes" and ratios that were created, partly as a result of the factor analysis findings (e.g., ratio of use of oral and print sources, external/internal source ratio). Given the fact that there are highly significant differences among the 14 subaudiences for all the individual items, all the indexes and ratios are also significant. Differences among the subaudiences are discussed.

6. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE INFORMATION SOURCES YOU PREFER (CHAPTER VI)

In the two previous chapters, information sources are considered from the standpoint of frequency of use in connection with the users' most important work activities and in terms of usefulness for all work activities. In this chapter, the users' two most preferred sources are identified; then the respondents' reasons for selecting them are examined. Respondents were also asked to describe their degree of isolation from the sources they needed and to indicate how frequently they exchange educational information with educators or other professionals.

Three types of "oral" sources (face-to-face discussions; workshops, seminars, graduate courses; and telephone calls) are among the most frequently mentioned preferred sources and account for 46 percent of the first-listed preferred sources and 39 percent of the second-listed preferred sources. Other sources mentioned by at least five percent of the respondents include: educational journals, personal library, notes and files in own office, library or resource center in own organization, and educational newsletters, bulletins, or announcements.

Respondents were presented with a list of fifteen characteristics of information sources which might account for their preferences; they were then asked to rank the list of reasons in order of their importance for the first and second preferred source. The more frequently mentioned characteristics (for first preferred source) are: (1) is likely to have the information I want, (2) is near at hand or easily accessible, (3) is responsive to my particular problem or question, (4) is easy to use, and (5) is usually available when I need it. By contrast, the lowest-ranked characteristics include: (11) provides opportunity for discussion or exchange of ideas, (12) is fast in responding, (13) is complete, comprehensive, (14) is free or inexpensive, and (15) is objective, impartial, not biased. The rankings for the second preferred source are slightly different. One notable difference is in the characteristic "is easy to use" which ranged from second to eighth rank for source one; but it is the first-ranked characteristic of every subaudience (except educational faculty who gave it second place) on their second preferred source. Tests of differences among the 14 subaudiences indicate that only five of the 30 item differences are significant. In other words, with some exceptions, users with manifestly different work activities, requiring different types of information, and with markedly different preferences for types of sources display many similarities in the reasons they give for their preferences for the different sources they use.

Respondents were asked to rate their degree of isolation from the sources they would like to have available in terms of four alternatives. A chi square test indicates that the 14 subaudiences are not significantly different in their distribution of choices over these four alternatives. Overall, 29 percent checked "not isolated," 59 percent checked "somewhat isolated," ten percent checked "seriously isolated," and fewer than two percent checked "almost completely isolated."

The last question in this section asked, "How often do educators or other professionals come to you for information, or do you pass information on to others relating to educational matters?" There are highly significant differences among the 14 subaudiences in their frequency of information exchange. Generally, state agency staff, chief administrators of higher education institutions, institutional researchers, and intermediate service agency staff display the highest rates of information exchange, with 70 percent or more indicating they exchange information at least daily or more often. By contrast, state and local school board members have the lowest rates of exchange with fewer than 16 percent of local board members and 22 percent of state board members exchanging information this often.

7. ABOUT YOUR PURPOSES FOR SEEKING INFORMATION (CHAPTER VII)

The field interview survey data (see Volume I) demonstrated that purposes for seeking information were related to patterns of information source use. Consequently, a question of purposes was included in the mail survey. The field interview schedule (see Volume I) included a list of 19 purposes for seeking information. Based on factor analysis of these items, the mail survey list was reduced to nine items which respondents were asked to rate in terms of their need for information and their satisfaction with current sources of information with respect to these nine purposes.

The data indicate that need for information varies markedly by type of user and purpose for seeking information, with subaudience averages ranging (on a three-point scale) from 1.17 (great need) for information to keep aware of developments and activities in education among ISA administrators and staff to 2.65 (small need) for information to prepare reports, articles, and speeches among school teachers. The rated levels of need for information among the 14 subaudiences are statistically significant for eight of the nine purposes, thus confirming a possibly obvious assumption that different subaudiences would have different purposes for seeking information. However, despite these statistically significant differences, a strong general pattern tends to characterize most user groups. Overall, the purpose which shows the greatest need for information is keeping aware of developments and activities in education. The second most important need is for information to find specific answers to questions arising in relation to the respondents' work. Identifying new sources of assistance for improving one's own work and developing alternative approaches to solving problems are also relatively high in need for information. By contrast, most subaudiences have only moderate or small need for information in order to prepare reports, articles, or speeches.

Satisfaction with current sources of information with regard to each of the needs is typically between "satisfactory" and "partly satisfactory." There are few differences among the 14 subaudiences in their ratings of satisfaction for any of the nine purposes. Greatest satisfaction is indicated for keeping aware of developments and activities, and least satisfaction is indicated for evaluating education practices or products. Satisfaction with current sources of information appears to be a more unitary condition than is need for information. In other words, users tend to give roughly similar satisfaction ratings to all nine purposes. Moreover, satisfaction with current sources of information for different purposes is also significantly related to ratings of (non)isolation from information sources users would like to have available. There are no strong correlations between ratings of need and ratings of satisfaction.

8. ABOUT YOUR PROBLEMS IN ACQUIRING AND USING EDUCATIONAL INFORMATION (CHAPTER VIII)

The questionnaire content shifted from ratings of satisfaction with current sources of information to a concern with problems. This short chapter reports on the content analysis of write-in responses to the following questions: "With respect to all the tasks you have worked on over the last year, did you have any unusually serious difficulty locating, obtaining, or using information which you critically needed in your work in education? (If yes,) Would you explain the difficulty? Can you offer a possible solution to the problem?"

The response rates for this write-in question were quite low, with an overall response rate of 17 percent. Generally, the practitioners were least ready to identify problems, while Congressional legislative aides and institutional researchers were most ready. A total of 224 responses were made. Overall, 75 percent of the problems dealt with difficulties with information sources. Among these problems, 30 percent dealt with the content or quality of information collections, 25 percent were concerned with the organization, analysis, or retrieval; and 20 percent were concerned with distribution or accessibility.

Of the remaining 25 percent of users' problems, 15 percent were classifiable as relating to the users' capacity (e.g., lack of time, funds, personnel to search for information, or not knowing where to look for unusual information). Ten percent of the responses were so specific that they were not classifiable.

This chapter contains some brief and tentative observations on differences among users in the types of problems they identify. Finally, the mail questionnaire data are compared with the field interview data.

9. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO (CHAPTER IX)

The field interviews had indicated that educational information users turn to a wide variety of persons and organizations in their search for information, but that individual users tend to follow fairly regular patterns in the sequence of sources they use. This section of the mail survey was designed to identify the sequence of use of more typical types of persons and organizations users turn to when they seek advice or information in their work. Lists of types of persons and organizations were tailored to each of the six questionnaire forms; however, approximately 13 items were roughly equivalent in content across the six forms.

Statistically significant differences among the 14 subaudiences were found for all 13 "common" items, thus demonstrating that the subaudiences differ in their patterns of information search. This chapter discusses these differences in terms of each of the 13 sources. However, the data are perhaps more remarkable in terms of the similarities. Virtually all subaudiences turn first to peers and then to a variety of other persons before turning to organizational sources. Superiors and constituents are relatively important for practitioners and administrators, but are distinctly less important for all higher education subaudiences. Experts are of some importance for nearly everyone, but are least valued by federal legislative aides (who may perhaps encounter more expert advice and testimony than any other subaudiences) and by teachers, educational faculty, or social scientists (all "instructional" subaudiences). Colleagues in other organizations are especially valued by nearly all higher education subaudiences and also by ISA and LEA STAFF. "Subordinates" take on different meanings for different subaudiences, but they are especially important for local school board members, "other" school staff, and higher education chief administrators.

Aside from libraries and state deparments of education, few organizational sources rank better than halfway for most subaudiences, but there are a few exceptions. Libraries are especially important for school teachers and most higher education subaudiences. State departments of education are of relatively great importance for ISA staff and all governance groups (except local board members). Professional organizations are relatively important for state legislators, state board members, and college of education faculty. National information services are relatively important only for social scientists. Finally, federal agencies are of substantial importance as information sources for federal legislative aides. Aside from these major exceptions, most of the subaudiences tend to display relatively high agreement (especially within subaudiences) in the rank ordering (sequence of use in information search) of the 13 common sources.

Since six different lists of types of persons and organizations were employed, this chapter also contains six tables indicating the percentages for each subaudience who indicated that a particular type of person or organization would be the first, second, or third source they would turn to.

The last section of this chapter examines data regarding the typicality of sequence of use that respondents had reported. An overall chi square test was not significant, indicating that the distributions of responses among the three response alternatives were not substantially different. Overall, 44 percent indicated that the sequence they identified was "very typical" of the order they use; 49 percent indicated that it was somewhat similar; and seven percent indicated that it was hard to describe a typical sequence of use of sources and hence responded in terms of a recent incident. Given these responses, we infer that slightly fewer than half of the education information users (44%)

tend to follow a fairly uniform pattern of search, and that half of the users (49%) may alter their search somewhat, depending on the particular information requirement, but that, with some unusual exceptions, the individual user's search sequence is at least roughly predictable. However, a small fraction (7%) of users have no single search pattern.

10. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU (CHAPTER X)

The last major section of the questionnaire presented respondents with a list of 26 information products and services and requested them to indicate their preference in terms of usefulness (very, somewhat, minimum). There are statistically significant differences among the 14 subaudiences for every one of the 26 types of information products and services. Consequently, the data and discussion in this chapter must be examined carefully with respect to the preferences of specific subaudiences for specific types of products and services.

Although these differences among subaudiences are sometimes substantial, some general tendencies exist. For most audiences, the more popular types of information product content include: education trends and issues, evaluation of programs and practices, solutions to common educational problems, and educational news and current events. The majority of the subaudiences rated these products "somewhat useful" or better. Among the least useful types of product content are: educational research methodology and lists of experts in education. Figure I.1 displays a sampling of subaudiences and products to illustrate some of the differences and similarities among different types of users.

Generally, the list of information services was rated as relatively less useful than the list of information products. Although nearly evenly divided in total number, only three services, as contrasted to eleven products, were rated "somewhat useful" or better. The top three services (averages over all subaudiences) include: regularly mailed information of interest, quick referral service at low cost, and quick reference services. Figure I.2 displays a sampling of information service preferences for the same sampling of subaudiences used in Figure I.1.

FIGURE I.1

NIE SURVEY OF USERS OF EDUCATIONAL INFORMATION

USEFUL PRODUCTS

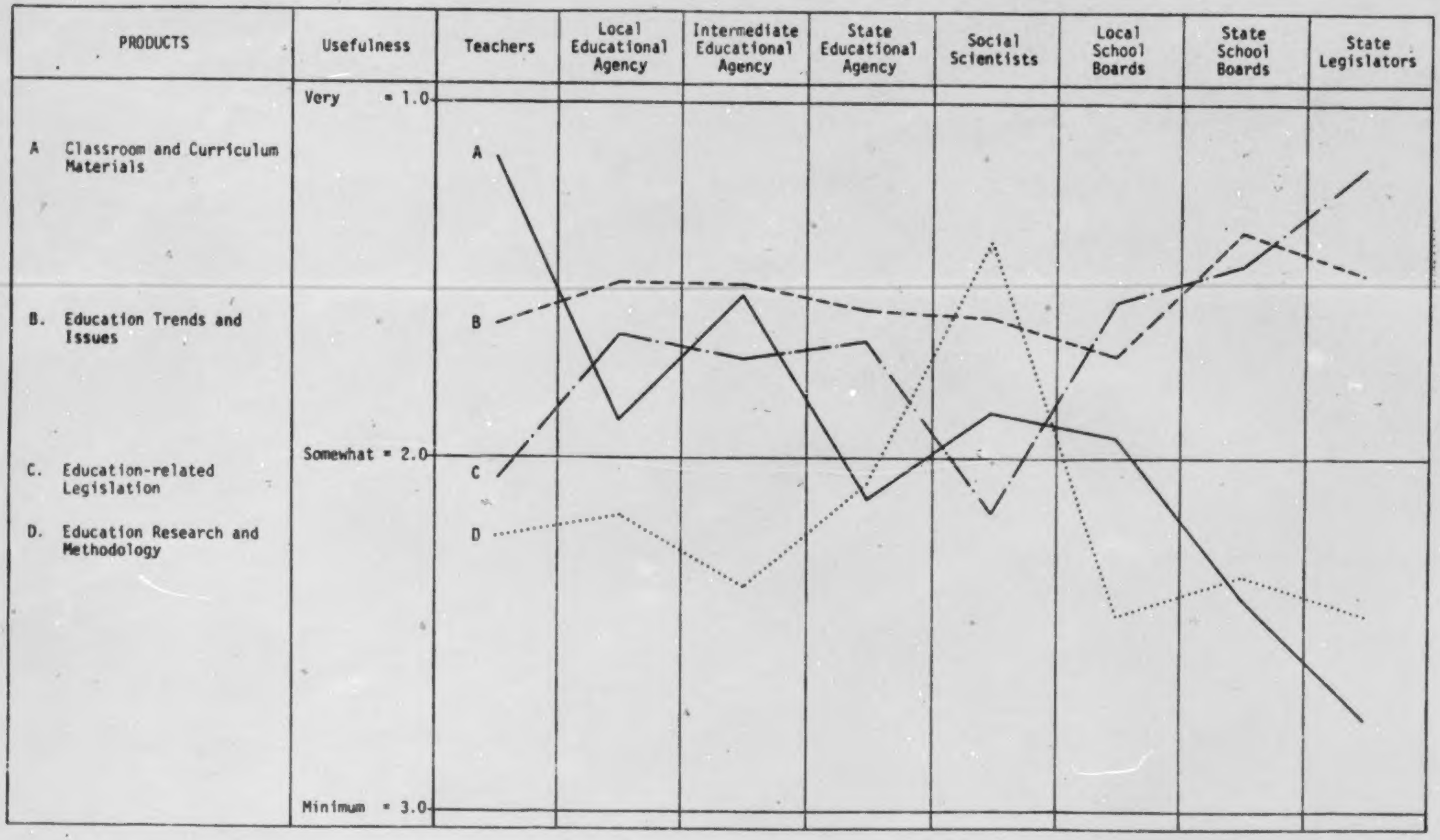
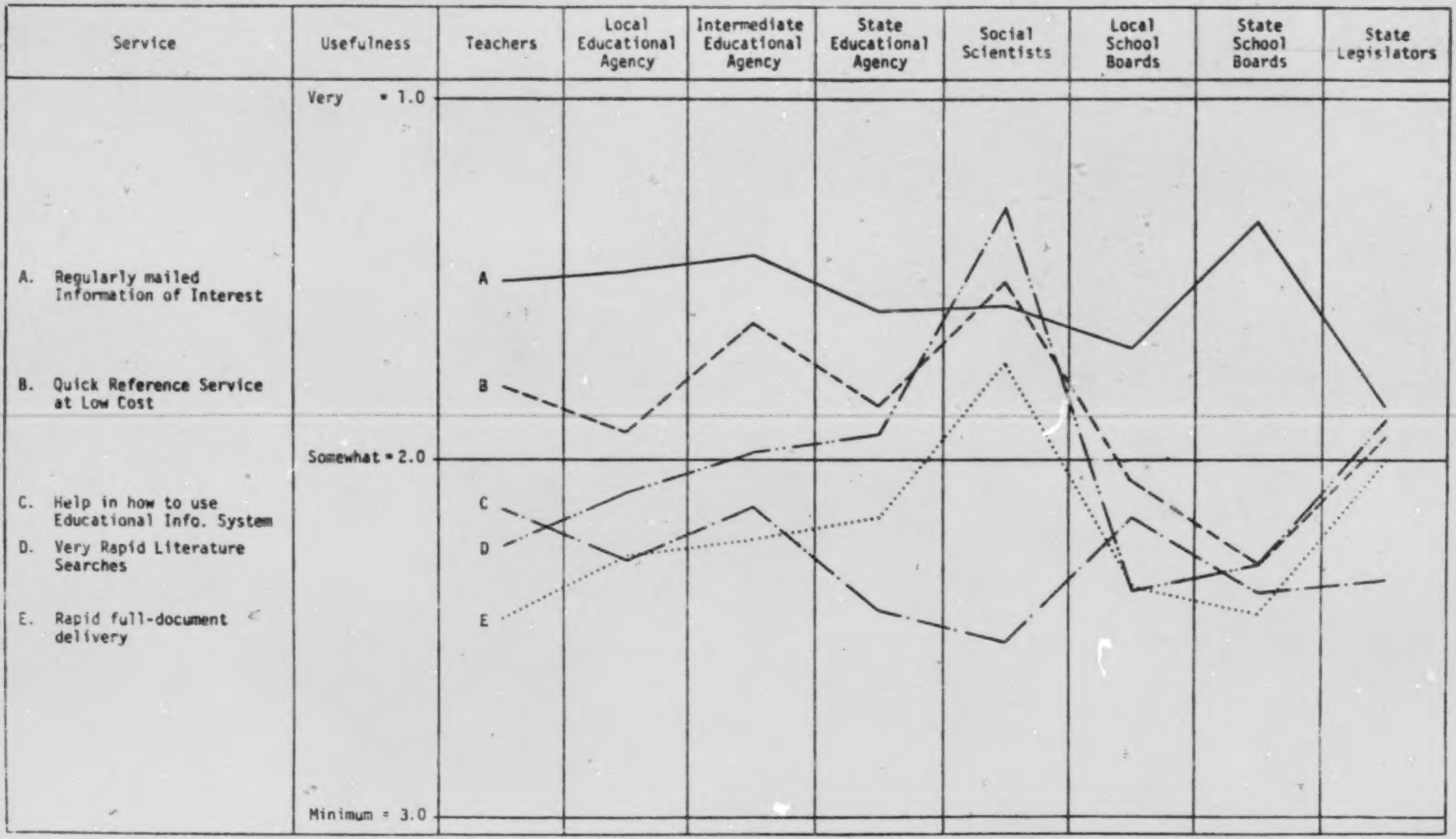


FIGURE I.2

NIE SURVEY OF USERS OF EDUCATIONAL INFORMATION

USEFUL SERVICES



Because of these important differences in subaudiences, the preference patterns of individual subaudiences or groups of subaudiences with similar preferences are discussed.

These information product and service preference data again confirm the fact that design of information systems, products, and services must take into account differences among users in terms of the work role (subaudience) they play in education. It should be noted that the data considered throughout this volume (with the exception of correlations) have focused mainly on differences and similarities among subaudiences considered as aggregates. We have demonstrated with the field survey data in Volume I that additional information concerning users as individuals who occupy specific positions in specific organizations also adds to our understanding of individual patterns of information use. Exploration of the data from this perspective will be reported in another volume. However, the practical impact of the results reported in this volume is that the educational information market is quite easily segmented by work roles (e.g., teacher, state school board member, intermediate service agency staff). The mail survey demonstrates that among these several work roles there are significant and relatively easily interpretable patterns of similarity and difference: in terms of importance of work activities, in need for information for different purposes, in effort to find information regarding different work activities, in kinds of sources used, in the delays users can tolerate for delivery of information, in the frequency of information exchange, in problems encountered in acquiring and using information, and in preferences for products and services. This information can be used to improve existing information systems and to design new products and services targeted to needs and preferences of various subaudiences. Because these data are based on nationwide probability samples, the findings are generalizable to the populations of educational information users considered in this market survey.

CHAPTER II
DESCRIPTION OF THE MAIL SURVEY

A. CHARACTERISTICS OF THE SAMPLE

1. DESCRIPTION OF AUDIENCES AND SUBAUDIENCES

In the RFP for this project, NIE suggested an audience typology with about thirty categories for identifying and describing the education markets to be surveyed. Early in the project, NIE staff, advisors, and project staff became concerned that, given a limited total mailout, the proposed size of each sample based on this typology would be inadequate for generating reliable estimates. One solution proposed by the Far West Laboratory was to reduce the number of subaudiences in the original typology to permit an increase in the sample size of each remaining subaudience. NIE accepted this solution and developed a revised typology indicated in Table II.1 under "Type of Position."

NIE suggested that we interpret the subaudiences broadly in terms of functions and roles. It is, therefore, important that we explain here the scope and nature of roles and personnel types included in the several audiences and subaudiences.

First, we defined the Practitioner audience as including preschool, elementary, and secondary school staff connected with local educational agencies. This audience, and its subaudiences, are further limited to include only public school staff. The subaudience "1.3, Other Instructional Staff" includes heads of departments, subject matter specialists, and curriculum and instructional staff who may be located at either the school building or school district level, librarians, counselors, social workers, visiting teachers, psychologists, school nurses, and other miscellaneous classifications. In other words, members of this subaudience must operate in a supervisory or staff support capacity, with a primary or supporting focus on curriculum and instruction.

Within the Administrators audience, the subaudience "2.1, School District Staff" is defined as including not only superintendents, but also deputy, assistant, and and associate superintendents; assistants and administrative assistants; administra-

TABLE II.1 PLANNED AND ACTUAL MAIL SURVEY SAMPLE

Type of Position	Planned Sample	Mailed Out	Actual Usable Sample	% Return
1. Practitioners				
1.1 Teachers	400	405	205	51%
1.2 Principals	350	336	187	56%
1.3 Other Instructional Staff	408	397	210	55%
Total	(1158)	(1138)	(602)	(53%)
2. Administrators				
2.1 School District Staff	242	239	119	50%
2.2 Intermediate Unit Staff	100	120	65	54%
2.3 State Education Agency Staff	200	220	117	53%
Total	(542)	(579)	(301)	(52%)
3. Governance				
3.1 State School Board Members	100	98	34	35%
3.2 Local School Board Members	230	345	97	28%
3.3 State Legislators and Aides	120	120	28	23%
3.4 U. S. Congressional Aides	25	41	10	24%
Total	(475)	(603)	(169)	(28%)
4. Higher Education				
4.1 Faculty of Schools of Education	100	127	64	50%
4.2 Social Science RDD&E Staff	100	100	68	68%
4.3 Institutional Researchers	100	100	55	55%
4.4 College Presidents and Chief Administrators	100	100	69	69%
Total	(400)	(427)	(256)	(60%)
TOTAL	(2575)	(2748)	(1328)	(50%)*

* Total percent return is based on total actual sample plus 41 questionnaires that were returned but were unusable due to illegible or incomplete responses.

tors for general administration, finance and school plans, pupil personnel, instructional, and special subject areas. The subaudience "2.2, Intermediate Unit Staff" includes all professional personnel of administrative units that exist "...primarily to provide consultative, advisory, administrative, or statistical services to local basic administrative units, or to exercise certain regulatory and inspectoral functions...where there is a supervisory union board, the union is included as an intermediate unit." The subaudience "2.3, State Education Agency Staff" includes the chief state school officers, deputies, and designated administrative, fiscal, and curriculum and instructional department heads, and all other professional staff members of these departments as reported by the National Center for Educational Statistics.

Within the Governance audience, the subaudiences "3.3, State Legislators and Aides and "3.4, U.S. Congressional Aides" includes elected state legislators and state and U.S. Congressional staff serving on education and education-related committees and subcommittees. All members and officers of state and local school boards are considered the targets for subaudiences 3.1 and 3.2.

Post-secondary education is limited to programs of two- and four-year institutions of higher education. This interpretation excludes adult basic and continuing education programs. The "4.2, Social Science RDD&E Staff" subaudience covers research, development, diffusion, and evaluation personnel and managers of R&D holding AERA membership and working in university-based research and development (R&D) centers or campus research institutes, as well as individual academic investigators. The subaudience "4.3, Institutional Researchers" is limited to personnel concerned with enrollment projections, facilities utilization, institutional program planning, budgets, etc., holding membership in the Association for Institutional Researchers.

2. DESCRIPTION OF OBTAINED SAMPLE

As can be seen in Table II.1, the total usable sample (1328) is slightly more than 50% of the planned sample and slightly less than 50% of the number of questionnaires mailed out. This 50% return rate is very consistent across the six

Practitioner and Administrator subaudiences, somewhat lower than the return rate for the four Higher Education subaudiences (especially "Chief Administrators" and "Social Science Researchers"), and considerably higher than the actual return rate for the four Governance subaudiences (especially for state and federal legislative aides). The distribution of the sample across the four audiences is approximately as planned, though the Governance audience is somewhat under-represented.

Table II.2 presents a summary of age and degree level (years of education) characteristics of the respondents in the various educational subaudiences. Since respondents indicated the age range in which they were included rather than their actual age, the average age for the total sample and the subsamples are approximations derived by multiplying the midpoint of each age range by the percent of respondents in that range. The average age for the total sample is 43.9 years with a range from 34.4 for U.S. Congressional aides (and 37.6 for teachers) to 52.5 for state school board members (and 50.3 for college presidents and chief administrators)* As would be expected, very few (2.4%) of the total sample were under 25 years old. Otherwise, the sample is nearly evenly distributed across the age ranges, though there are fewer respondents over 55 years old than in the other age ranges (although over 40% of state school board members are 55 or over.)

Degree level was translated into years of education as follows: High School = 12, Associate of Arts = 14, Bachelor's Degree = 16, Master's Degree = 17.5, and Doctoral Degree = 21. The average years of education for the total sample is 17.7 (approximately equivalent to a Master's Degree) with a range from 14.5 for local school board members (16.5 for state school board members and 16.6 for teachers) to 20.8 with 94% having doctoral degrees for social science researchers (and 20.6 for college presidents and chief administrators and 20.5 for faculty of schools of education).

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* Chi square test of age categories by type of position and degree level by type of position are both statistically significant well beyond the .01 level.

TABLE II.2 DISTRIBUTION OF MAIL SURVEY SAMPLE: TYPE OF POSITION BY AGE AND DEGREE LEVEL

TYPE OF POSITION	Nr.	AGE						DEGREE LEVEL (Years of Education)					
		Under 25 %	25-34 %	35-44 %	45-54 %	55+ %	Mean* Age	H.S. (12) %	AA (14) %	BA (16) %	MA (17.5) %	PhD (21) %	Mean Years** of Education
1.1 Teachers	205	7.4	44.1	22.8	15.8	9.9	37.6	0.5	0.5	57.9	40.6	0.5	16.6
1.2 Principals	187	0.5	16.6	31.6	35.8	15.5	45.1	0.0	0.0	3.8	89.7	6.5	17.7
1.3 Other Instructional Staff	210	6.3	29.8	22.1	26.0	15.9	41.9	2.0	1.0	25.4	70.2	1.5	17.0
2.1 School District Staff	119	0.0	12.8	35.0	35.9	16.2	45.7	0.0	0.0	7.7	82.1	10.3	17.8
2.2 Intermediate Unit Staff	65	1.5	20.0	33.8	24.6	20.0	44.4	1.5	0.0	10.8	78.5	9.2	17.6
2.3 State Education Agency Staff	117	0.0	17.1	29.9	29.1	23.9	46.6	1.7	0.9	9.5	56.9	31.0	18.3
3.1 State School Board Members	34	0.0	2.9	14.7	41.2	41.2	52.5	15.2	6.1	42.4	18.2	18.2	16.5
3.2 Local School Board Members	97	1.1	4.2	51.6	28.4	14.7	45.3	43.0	9.7	24.7	20.4	2.2	14.5
3.3 State Legislative Aides	28	0.0	21.4	32.1	17.9	28.6	45.7	7.4	3.7	18.5	44.4	25.9	17.6
3.4 U.S. Congressional Aides	10	10.0	70.0	0.0	10.0	10.0	34.4	0.0	0.0	50.0	30.0	20.0	17.5
4.1 Faculty of School of Education	64	0.0	15.6	20.3	39.1	25.0	47.6	0.0	0.0	1.6	12.5	85.9	20.5
4.2 Social Science RDD&E Staff	68	0.0	33.8	33.8	20.6	11.8	41.1	0.0	0.0	0.0	5.9	94.1	20.8
4.3 Institutional Researchers	55	0.0	20.0	36.4	29.1	14.5	43.4	0.0	0.0	7.3	34.5	58.2	19.4
4.4 College Presidents and Chief Administrators	69	0.0	1.4	26.1	43.5	29.0	50.3	0.0	0.0	0.0	11.6	88.4	20.6
TOTAL	1328	2.4	22.2	29.3	28.6	17.5	43.9	4.2	1.2	19.5	52.2	22.9	17.7

* Estimate obtained by multiplying midpoint of age ranges by the percent of respondents in those ranges (23 and 61 were used as the "midpoints" of the "under 25" and "over 55" categories respectively).

** Estimate obtained by multiplying the number of years of education typically associated with degree levels by the percent of respondents at each degree level.

B. SURVEY DESIGN AND SAMPLING

What follows is a brief description of the sampling procedures. For more details see Appendix A.

For local school system subaudiences including the three Practitioners subaudiences (Teachers, Principals, and Other Instructional Staff), School District Staff (subaudience 2.1), and Local School Board Members (3.2), school districts were used as the primary sampling units (PSUs). PSUs were stratified by school system pupil enrollment as a measure of size. The probability of an LEA system being selected for the sample was proportional to the school enrollment, but the proportion of teachers, principals, other instructional staff, and district staff was inversely proportional to the schools' enrollment, so an overall sampling fraction was maintained for each subaudience.

For the three subaudiences associated with state level agencies (State Education Agency Staff, State Legislative Aides, and State School Board Memeber), five states were chosen randomly from each of the four major census regions. SEA staff for the sample were drawn randomly within each SEA in numbers proportional to the total number of staff listed for the SEA. Six State Legislative Aides, and five State School Board members were selected randomly from each of the 20 states (except that there were only three state school board members from Mississippi).

The Intermediate Unit Staff sample was selected randomly from a recent Curriculum Information Center professional staff census list.

U.S. Congressional Aides were selected by NIE on a non-random basis.

Social Science RDD&E Staff were selected randomly from a computer-generated list of American Educational Research Association members working in research, development, dissemination, or evaluation or in R&D management and employed by higher education institutions. Institutional Researchers were selected randomly from the most recent directory of members of the Association of Institutional Researchers.

Faculty of Schools of Education were sampled from institutional lists developed by Egon Guba and David Clark and from college catalogs with stratification based on size and type of faculty. Presidents and Chief Administrators of Higher Education include presidents (or provosts, vice presidents, or deans for academic affairs) which were selected to represent institutions drawn randomly from a list of institutions stratified according to size of enrollment and type of institution (i.e., doctoral-granting, comprehensive, liberal arts, two-year, specialized) as specified by the Carnegie Commission on Higher Education.

The methods of sampling for the various subaudiences are summarized in Table II.3 and are described in more detail in Appendix A.

Questionnaire Content. To orient readers, we present this brief outline. The questionnaire was seven pages in length. (See Appendix B for questionnaire.) There were six different forms (containing audience-specific variations in sections I and VII only.* Each form was organized in nine sections as follows:

I About Yourself and Your Work
1. Name
2. Title
3. (Forms A and P: opinion on adequacy of amount and quality of available information)
   Forms B, E, H, and L: need for information in broad subject areas.
4. Degree of importance of work activities in education (lists of work activities were tailored to each form)
5. Work activities for which you made any kind of special effort during the past year to find information.

II About the Information Sources You Use in Your Most Important Work Activities
1. (a) Most important work activity**
   (b) Frequency of use of 18 sources in connection with most important work activity
   (c) Next most important work activity**

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* Form A = Administrators (LEA, ISA, SEA); Form B = School Boards; Form E = Education Faculty and Social Scientists; Form H = Higher Education Chiefs and Institutional Researchers; Form L = Legislators and Aides, Form P = School Practitioners.

** Since the work activities identified are referenced to the list provided in I.4, the responses to II.1(a) and II.1(c) are also form-specific, although the appearance of question II.1 is identical in all six forms.

TABLE II.3 SUMMARY OF SAMPLING METHODS

Subaudience	Sample Size	Planned Sampling Fraction	Method
1.1 Teachers	400	.00018	CLUSTER Stratified cluster sampling with PSU probability proportional to school enrollment. Constant overall sampling fraction for teachers, principals, other instruction staff, and school district staff. Constant number for school board members. ***
1.2 Principals	350	.00374	
1.3 Other Instructional Staff	408	.00374	
2.1 School District Staff	242	.00372	
3.2 Local School Boards	230	.00200	
2.3 State Education Agency Staff	200	.0211	Five states chosen randomly in each of the four census regions. Constant number for each state for boards and legislative aids. Constant fraction for state staff. ***
3.1 State School Boards	100	.1912	
3.3 State Legislative Aids	120	.2400	
4.1 Faculty of Schools of Education	100	.0033	Stratified cluster sampling of faculties with stratification based on size and type of faculty.
4.4 Presidents and Chief Administrators	100	.0400	STRATIFIED Stratified random sample with stratification based on Cargenie classification and size of enrollment.
2.2 Intermediate Unit Staff	100	.0294	SIMPLE RANDOM Simple random sample based on NCES list with replacement by person filling position. ***
4.2 Social Sciences RDD&E Staff	100	.0167	Simple random sample of AERA membership in RDD&E on campus. ***
4.3 Institutional Researchers	100	.1093	Simple random sample of U.S. full members in Association of Institutional Researchers.
3.4 U.S. Congressional Aids	25	(.3333)	NON-RANDOM, JUDGMENTAL Selected by NIE.

(d) Frequency of use of 18 sources in connection with next most important work activity

2. How much time can you usually allow to elapse after realizing a need for information in connection with your two most important work activities?

III About the Usefulness of the Information Sources You Use

1. Rating of usefulness of same 18 information sources listed in II.1, in providing you with information you need for any part of your work.
2. Identification (write in) of the single most useful source of information in your work.

IV About the Most Important Characteristics of the Education Information Sources You Prefer

1. (a) Identify source you most prefer to use (from list of 18 previously listed).
   (b) Rank 15 "reasons" (characteristics) in terms of their importance to your preference of this source.
   (c) Identify second preferred source.
   (d) Rank 15 reasons in terms of their importance to your preference for this source.
2. Degree of isolation from information sources you would like to have available to you (rating).
3. How often do educators or other professionals come to you or do you pass information on to others relating to educational matters (rating).

V. About Your Purposes for Seeking Information

1. Rating of need for information regarding nine general purposes.
2. Rating of satisfaction with current sources of information for nine general purposes.

VI About Your Problems in Acquiring and Using Educational Information: With respect to all the tasks you have worked on over the past year, did you have any unusually serious difficulty locating, obtaining, or using information which you critically needed in your work in education? (Y/N)

1. (If yes), would you explain the difficulty? (Write in)
2. Can you offer a possible solution to the problem? (Write in)

VII About the People and Organizations You Turn To

1. Rank a list (tailored for each form) of types of persons and organizations in the order (sequence) you typically use for as many sources as you typically use. (If there is no typical sequence, describe sequence for a recent incident.)
2. Rate the sequence listed as very typical of the order you use, somewhat typical, or specific to a recent incident.

VIII About the Information Products and Services That Would be Most Useful to You

1. Rate 13 products and 13 services for usefulness
2. If there is some other form of information which would be especially useful to you, would you please describe it? (Write in)

IX Statistical Data

1. Age
2. Highest earned degree
3. Space for additional comments.

C. INFERENCES AND GENERALIZATIONS FROM SURVEY FINDINGS TO POPULATIONS

1. SAMPLE BIAS

Because all subaudiences except federal legislative aides * were randomly sampled. the results of this mail survey are generalizable to populations they represent. However, the reader should study Appendix A carefully to understand how each population was defined and sampled. Although the most current lists were used to build sampling frames, several of the lists were two or three years old. Since there were severe financial limits on sampling frame building, it usually was not possible to update frames, hence very recent additions (e.g., new school systems, new community colleges, new members of AERA) were not sampled. This introduces an unknown, but probably relatively small bias in some samples.

A more serious problem was encountered in securing LEA cooperation. The sampling plan provided for sampling of LEAs with replacement, and this was done whenever possible. The replacement LEAs were chosen randomly from the same enrollment size strata and may thus be assumed to be substitutes for the refusing LEAs; however, we have no way of knowing whether subaudience samples from refusing LEAs would be different in any way from their replacements.

Undoubtedly, the most serious problem is the response rate. The overall attained rate of 50% is typical for educational user mail surveys, but is hardly a satisfying outcome.** The very low response rates among the governance subaudiences are especially troubling. It is probably unwarranted to assume that non-respondents are like respondents. It seems more reasonable to believe that those who bothered to fill out and return the questionnaire are in fact the more "information-prone" members of their subaudiences, and hence we may have a more favorable impression of all subaudiences. However, relative preferences among items and comparisons of one subaudience with another may still have substantial usefulness in defining the information preference patterns and needs of educational information users. But it should be assumed that all the results reported are biased toward the more "information-prone" proportion of each audience and subaudience.

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* In one sense the 41 federal legislative aides may be considered the population of interest to NIE, hence this subaudience was 100% sampled.

**Plans to accomplish follow-up of SEA and LEA subaudiences were partially nullified by the variety of options that had to be offered to meet requirements of various states. In some cases, follow-up, if any, had to be left to the SEA.

2. STATISTICAL TESTS

In most of the tables that follow, the number (N =) of valid responses to each item, or the smallest number (N ≥) of valid responses for a group of items, is indicated, so the reader may have some idea of the size of the samples involved. Appendices will provide further information on standard deviations and/or standard errors of measurement. In the case of subaudiences that were simple random sampled (intermediate unit staff, social science researchers, and institutional researchers), the standard errors are approximate estimates for establishing confidence regions around point estimates.* However, the computation of appropriate estimates for the cluster and stratified samples are more complicated, and in the case of federal legislative aides, the finite population correction is non-trivial.

Statistical tests reported (unless otherwise specifically stated to the contrary) assume that all audiences were simple random samples from relatively large populations. Because the cluster sampling method used for many of the subaudiences tends to produce a larger estimate of sampling errors than would be calculated with the same size simple random sample, virtually all the statistical tests are liberal. However, the majority of statistically significant differences that are reported are in fact found to be significant far beyond the .001 level and would prove to be significant, perhaps at somewhat lower levels, if the more complex computations required to compute appropriate tests (adjusting standard errors for cluster or stratified sampling) were made.**

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* Neglecting the finite population correction $(1-f)=(1-n/N)$ leads to a small overestimation of the variance. The effect on the computed standard error is approximately $(1-f/2)$; e.g., for institutional researchers, the corrected standard error would be approximately 0.97 smaller since the sampling fraction is approximately 0.06 (see Appendix A, Table A.2).

** In the tables that follow, significance levels are symbolized as follows: *significant at the .05 level, **significant at the .01 level, ***significant at the .001 level.

It must be emphasized, however, that variances, standard errors, and tests of significance based on assumptions of independent selections are not valid for the cluster samples. The mean of a complex probability sample such as the cluster samples in this survey is a good estimate of the population mean (ignoring the response bias problem previously discussed), but $s/\sqrt{n}$ can be an underestimate of the standard error. Similarly, a regression coefficient will be a good estimate of the corresponding population value, but the simple random sampling (SRS) formula of the standard error $(1/\sqrt{n-k-1})$ may be a poor estimate.*

To summarize, means, percentages, coefficients of correlation, and similar estimates of central tendency or association are quite trustworthy (except for the non-response bias problem), but SRS formula estimates of standard errors, and statistical inferences based on these SRS estimates are not strictly valid except for the SRS subaudiences. In general, one should go beyond the statement of statistical significance, inspect the magnitude of the differences or association, and ask whether the difference or association appears to be of practical and meaningful magnitude.

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* Since many of the response alternatives in the questionnaire are three (e.g., (High, Moderate, Low) or four category responses, correlation coefficients based on these coarse groupings severely underestimate correlation that might have been attained if more finely categorized variables were involved. Peters and Van Voorhis (1940) provide a correction formula. Wylie (1976) has demonstrated that the correction formula is extremely accurate, regardless of the degree of marginal skewness, except where one or both of the marginals has only two class intervals. Wylie's data indicate that where the population correlation (p) is .40 and there are two variables, each with three class intervals and each with slight skew, the uncorrected correlation will be approximately .28, the corrected .38. If p = .50, the uncorrected correlation is approximately .35 and the corrected .48; if p = .60, the values are approximately .42 and .57. Unless otherwise noted, the correlations reported will be uncorrected values. Please note that the majority of these correlations are substantially restricted and are underestimates of a population correlation not based on coarse grouping. Because multivariate tests of significance take into account the covariance (correlation) among variables, generalizations based on multivariate tests may also be influenced by coarse-grouping of variables.

CHAPTER III

QUESTION I. ABOUT YOURSELF AND YOUR WORK

A. OVERVIEW

This chapter reports the analysis of quantitative questions (# 3, 4, 5) contained in the first section of the questionnaire.

I. ABOUT YOURSELF AND YOUR WORK

1. Name
2. Title
3. Forms B, E, H, L: need for information in broad subject areas
   Forms A and P: opinion on amount and quality of available information
4. Degree of importance of work activities in education (list of activities were tailored to each form)
5. Work activities for which you made any kind of special effort during the past year to find information

Content Needs. Question I.3 was a "warm-up" question to help focus respondents on information needs. In the case of school boards (Form B), educational faculty and social scientists (Form E), higher education chief administrators and institutional researchers (Form H), and state legislators and U.S. Congressional aides (Form L), this question dealt with the individual's needs for information in broad subject areas, with the content specifically tailored to the general needs of each audience. The response percentages (great, moderate, or little need) are reported for each subaudience pair, together with significance tests of item response differences between the two subaudiences. These content information needs data may not be of great intrinsic interest to most readers, but they deserve at least brief attention because they help to define the information content needs of eight target audiences that have rarely been studied.

Quality of Available Information. Because elementary and secondary education practitioners and administrators (representing two-thirds of the planned sample) have been repeatedly surveyed regarding content needs, a briefer "warm-up" question concerning the quality of available information was substituted to reduce the response burden. No differences were found among the six practitioner and administrator subaudiences in either their ratings of adequacy of amount or adequacy of quality of available information. The vast majority rated both amount and quality either somewhat adequate or very adequate.

Important Work Activities. A separately tailored list of work activities was presented in question # 4 on each of the six forms of the questionnaire. The item responses (high, moderate, low importance) for each subaudience are presented together with results of tests for differences between subaudiences. These differences and the high importance items for each subaudience are identified and discussed. With the one exception of the legislative audience, where sample sizes are extremely small, there are numerous statistically and usually practically large differences in the work importance ratings for all other audiences. The results demonstrate that even when subaudiences are grouped by similarities in the nature of their work activities in education (e.g., practitioners or school board members), there are major differences between subaudiences in their patterns of work activity, which should be considered in analyzing the information needs of each subaudience. Although examining the details of these work importance ratings for each of 14 subaudiences is admittedly tedious, the readers who make the effort to gain a general impression of the work activity profile of each audience, and of the major differences between similar subaudiences, will find that they may have gained a sharper and surer sense of what kinds of work various information user audiences perform.

Special Effort to Find Information. The fifth question on all six forms asked respondents to review the list of activities they had just rated for work importance and identify those activities where they had made any kind of special effort during the past year to find information. The percentages of each subaudience indicating they had made a special effort are reported in the same tables (by form) containing importance ratings so that the two types of response may be compared. Activities where there is frequent effort to search for information are identified and briefly described for each subaudience. Significance tests of the differences in response rates for subaudiences are also reported. Generally, there are somewhat fewer significant differences among subaudiences than were found for work importance ratings, although the total number of significant differences in many a special effort is quite large. In most cases, significant differences in effort to find information relating to a work activity are associated with comparable significant differences in subaudience ratings of importance of the activity.

Relation Between Importance of An Activity and Effort to Find Information. Correlations between activity importance and effort to find information are reported for each activity. Most are of variable and usually modest size, but the great majority are statistically significant, thus confirming that amount of information-seeking is related to type and importance of work activity. Although this finding may seem obvious, it is of substantial importance, since examination of the relation of work activities to information needs has rarely, if ever, been undertaken in previous educational information needs surveys.

Patterns of Work Activity. Because of the lack of previous information concerning the work activity of persons in education, and in anticipation of the use of these data as predictors of information needs and preferences, each of the six different sets of work activity importance ratings were intercorrelated and factor-analyzed to provide some idea of the extent to which different activities were associated with one another. Typically, five or six orthogonal factors extracted at least 60 percent of the covariation found within the set of 12 to 20 activity items appearing on each form, providing some evidence for at least moderate clustering of some items. In the case of the practitioner, the elementary and secondary administration, and the higher education administration audience factor analyses, there are some remarkable similarities: in each case a "program planning," a "management," and an "external relations" factor is identified. The analysis of the educational faculty and social scientists data indicates the existence of at least four identifiable factors: "management of research and evaluation," "performance of research and evaluation," "teaching," and "practice improvement."

Examination of the tables of correlations may be of interest to a few readers who may be interested in the degree of association of specific activities. These survey results may constitute the most comprehensive, reliable, and up-to-date picture of the work of persons in the field of education.

Note, the data and discussion results are organized by audience, first with a section dealing with activity importance and effort to find information, followed by a comparison section discussing correlation and factor analysis results.

A final comment. The information presented in the following sections of this chapter may require more attention than the casual reader cares to give. For casual readers, a brief inspection of the six tables reporting percentages of responses for the questions on importance of work activities and effort to find information may be worth brief examination. Much of the text in these sections and all of the sections describing patterns of work activity may be skipped or only scanned lightly. On the other hand, the text has been written with a view of calling the reader's attention to the more important findings. The discussion does not attempt to cover all of the detail presented in the tables, but it provides sufficient description to help the reader to make sense out of the mass of numerical information contained in each table.* We believe that careful reading of the following sections is of considerable importance for those who may have specific concerns with the design or improvement of information services or products targeted to user audiences or for those who are concerned with other needs of these educational audiences.

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* More technical items, usually regarding sampling or statistical details, are treated in footnotes that may be ignored by most readers.

B. NEED FOR SUBJECT CONTENT INFORMATION

A number of empirical studies have provided data on information needs of elementary and secondary education practitioner and administrator audiences in various subject areas. These include surveys by Hood and Hayes (1967), Chorness, Rittenhouse, and Heald (1968), Magisos (1971), Fry (1972), Wanger (1972), Hull and Wanger (1972), and Mick, Paisley et al. (1972). Because these studies provide a fairly consistent view of the needs of practitioners and administrators, it was decided to reduce the response burden for these audiences by deleting questions regarding need for information in subject areas. However, aside from the educational RDD&E subaudience, there was a dearth of information on the subject area needs of other subaudiences. Because these needs varied considerably from one audience to another, separate lists of content areas were presented on each of four forms: H. Higher Education (chief administrators, institutional researchers); E. Educational Research and Training (educational faculty, social scientists); B. School Boards (local, state); and L. Legislators (state, U.S. Congressional aides). The following tables report the distributions of responses for each form of the questionnaire.

Higher Education Chief Administrators and Institutional Researchers. There are only two statistically significant differences between chief administrators and institutional researchers in terms of their ratings of need for information. Chief administrators indicate much higher need than institutional researchers for information concerning: (a) academic programs and (b) government programs and educational legislation. The needs of these two groups in six other content areas are essentially similar. The greatest need of chief administrators is for information on academic programs (e.g., curriculum, programs of study, instructional methods), while the greatest need of institutional researchers is for information on staff (e.g., characteristics, assignments, salary, work loads).

If we take an unweighted average* over the two groups, the content needs would be arranged in this order: (1) staff, (2) academic programs, (3) finance, (4) students,

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* Treating the two groups as if their sample sizes were equal.

TABLE III.1 QUESTION I.3: ABOUT YOURSELF AND YOUR WORK
(Higher Education Chiefs and Institutional Researchers)

Please rate the following broad subject areas in terms of your need for educational information in each area.

QUESTIONNAIRE ITEM	CHIEF ADMINISTRATIVE OFFICERS N ≥ 68			INSTITUTIONAL RESEARCHERS N ≥ 55			Chi Square
	GREAT	MODERATE	LITTLE	GREAT	MODERATE	LITTLE	P-Level
Content Areas	%	%	%	%	%	%	
Academic Programs (e.g., curriculum, programs of study, instruction methods. .	82.6	17.4	0.0	41.8	34.5	23.6	***
Other Institutional Programs (e.g., research, public service).	36.8	51.5	11.8	20.0	58.2	21.8	NS
Students (e.g., characteristics, assignments, salary, work loads)	56.5	40.6	2.9	63.6	27.3	9.1	NS
Staff (e.g., characteristics, assignments, salary, work loads).	73.9	21.7	4.3	83.6	10.9	5.5	NS
Finance (e.g., income, expenditures, budgets).	65.2	31.9	2.9	61.8	32.7	5.5	NS
Facilities and Equipment (e.g., sites, buildings, utilization of space)	32.4	50.0	17.6	29.1	45.5	25.5	NS
Characteristics of other Institutions (e.g., programs, staff, finances). . . .	34.8	50.7	14.5	47.3	45.5	7.3	NS
Government Programs and Educational Legislation	49.3	47.8	2.9	21.8	50.9	27.3	***

(5) characteristics of other institutions, (6) government programs and educational legislation, (7) facilities and equipment, and (8) other institutional programs.

Educational Faculty and Social Scientists. There are four statistically significant differences between these two subaudiences. The most significant difference is concerning information on educational research, development, and evaluation: 90 percent of the social scientists versus 60 percent of the education faculty indicate that they have a great need for this kind of information. In three other areas the education faculty indicate a significantly higher need for information on: personnel policies and operations, on educational facilities and operations, and on educational finance.

The unweighted average for the two groups results in the following ordering of needs of content information: (1) educational research, development, and evaluation, (2) instructional methods, (3) student data, (4) classroom subjects, (5) government programs and educational legislation, (6) personnel policies and operations, (7) management and administration, (8) educational finance, (9) educational facilities and operations, and (10) administrative agencies.

School Boards. There are only three content areas where the information needs of state and local school board members may differ. State school board members report a remarkably greater need than local board members for information on student data; they also report greater need for information on special programs, and on community/public interaction and affairs. In the other content areas, there are no significant differences between local and state boards.

If we give the needs of both groups equal weight, the overall needs are rank-ordered from high to low: (1) budget and finance, (2) management (e.g., policies and practices) legislation, (3) community/public interaction and affairs, (4) governmental programs and education legislation, (5) student data, (6) personnel policies and operations, (7) special programs, (8) instructional methods, (9) classroom subjects, and (10) education facilities and operations.

TABLE III.2 QUESTION I.3: ABOUT YOURSELF AND YOUR WORK
(Educational Faculty and Social Scientists)

Please rate the following broad subject areas in terms of your need for educational information in each area.

	EDUCATIONAL FACULTY N ≥ 63			SOCIAL SCIENTISTS N ≥ 66			Chi Square P-Level
QUESTIONNAIRE ITEM	GREAT	MOD-ERATE	LITTLE	GREAT	MOD-ERATE	LITTLE	
Content Areas	%	%	%	%	%	%	
Administrative Agencies (e.g., school boards, districts)	15.6	32.8	51.6	8.8	20.6	70.6	NS
Educational Finance (e.g., fiscal policies, salaries).	22.2	23.8	54.0	4.4	38.2	57.4	**
Classroom Subjects (e.g., textbooks, curriculum).	53.1	32.8	14.1	40.3	35.8	23.9	NS
Instructional Methods (e.g., open education, individualized instruction) .	68.8	17.2	14.1	63.6	22.7	13.6	NS
Government Programs and Education Legislation	40.6	37.5	21.9	39.7	47.1	13.2	NS
Management and Administration (e.g., policies, practices)	23.4	29.7	46.9	23.5	36.8	39.7	NS
Personnel Policies and Operations (e.g., certification, tenure)	34.4	31.3	34.4	14.7	41.2	44.1	*
Educational Facilities and Operations (e.g., attendance, equipment, use) . . .	18.8	37.5	43.8	5.9	30.9	63.2	*
Student Data (e.g., characteristics, achievement)	39.7	38.1	22.2	52.9	33.8	13.2	NS
Educational Research, Development and Evaluation	60.3	31.7	7.9	89.7	8.8	1.5	***

TABLE III.3 QUESTION I.3: ABOUT YOURSELF AND YOUR WORK
(School Boards)

Please rate the following broad subject areas in terms of your need for educational information in each area.

	LOCAL BOARD N ≥ 88			STATE BOARD N ≥ 15			Chi Square
QUESTIONNAIRE ITEM	GREAT	MOD-ERATE	LITTLE	GREAT	MOD-ERATE	LITTLE	P-Level
Content Areas	%	%	%	%	%	%	
Budget and Finance (e.g., fiscal policies, salaries)	52.6	37.1	10.3	41.2	41.2	17.6	NS
Classroom Subjects (e.g., textbooks, curriculum)	19.6	59.8	20.6	16.1	61.3	22.6	NS
Instructional Methods (e.g., open classrooms, peer tutoring)	20.8	49.0	30.2	26.3	36.8	36.8	NS
Community/Public Interaction (e.g., community programs, parent support or resistance)	31.6	50.5	17.9	57.9	21.1	21.1	*
Governmental Programs and Education Legislation (e.g., Head Start, state aid)	35.4	49.0	15.6	47.4	31.6	21.1	NS
Management (e.g., policies, practices)	36.8	43.2	20.0	52.6	42.1	5.3	NS
Personnel Policies and Operations (e.g., certification, tenure, contracts) . . .	28.1	46.9	25.0	47.4	42.1	10.5	NS
Educational Facilities and Operations (e.g., attendance, equipment, use). . .	15.8	52.6	31.6	5.3	47.4	47.4	NS
Student Data (e.g., characteristics, achievement).	19.8	51.0	29.2	55.6	44.4	0.0	***
Special Programs (e.g., compensatory education, vocational education). . . .	22.7	62.5	14.8	46.7	33.3	20.0	**

Legislators and Aides. Perhaps because of the sample sizes there are no statistically significant differences between federal legislative aides and state legislators. If we pool the data (ignoring subaudience identification) we find that the information content needs are ordered: (1) government programs and education legislation, (2) budget and finance, (3) special programs, (4) community reactions, (5) administrative agencies, (6) management, (7) student data, (8) personnel policies and operations, (9) educational facilities and operations, and (10) classroom subjects.

TABLE III.4 QUESTION I.3: ABOUT YOURSELF AND YOUR WORK
(Legislators and Aides)

Please rate the following broad subject areas in terms of your need for educational information in each area.

	FED. LEGIS. AIDES N ≥ 9			STATE LEGISLATORS N ≥ 26			Chi Square
QUESTIONNAIRE ITEM	GREAT	MOD-ERATE	LITTLE	GREAT	MOD-ERATE	LITTLE	P-Level
Content Areas	%	%	%	%	%	%	
Administrative Agencies (e.g., school boards, districts)	30.0	40.0	30.0	34.6	53.8	11.5	NS
Budget and Finance (e.g., fiscal policies, salaries).	30.0	60.0	10.0	67.9	28.6	3.6	NS
Classroom Subjects (e.g., textbooks, curriculum).	10.0	40.0	50.0	7.1	42.9	50.0	NS
Community Reactions (e.g., support, resistance).	40.0	50.0	10.0	35.7	57.1	7.1	NS
Government Programs and Education Legislation	80.0	10.0	10.0	64.3	28.6	7.1	NS
Management (e.g., policies, practices) .	22.2	55.6	22.2	35.7	53.6	10.7	NS
Personnel Policies and Operations (e.g, certification, tenure)	0.0	50.0	50.0	32.1	46.4	21.4	NS
Educational Facilities and Operations (e.g., attendance, equipment, use) . . .	30.0	40.0	30.0	7.1	60.7	32.1	NS
Student Data (e.g., characteristics, achievement)	30.0	60.0	10.0	25.0	42.9	32.1	NS
Special Programs (e.g., compensatory education)	70.0	30.0	0.0	34.6	53.8	11.5	NS

C. ADEQUACY OF AVAILABLE INFORMATION

In place of questions regarding need for subject content information, practitioner and administrator audiences were asked two general questions about the adequacy of the information available to them about educational issues, problems, and practices. Table III.5 presents the results. Given the relatively large samples involved, it is perhaps surprising that chi square tests indicate that there is no difference among these six subaudiences in their ratings of the amount of information available or the quality of information available. A total of 56 percent rate amount and 57 percent rate quality somewhat adequate. Only 17.5 percent rate amount somewhat or very inadequate, but 27.0 percent rate quality somewhat or very inadequate. Although practitioners and administrators tend to be somewhat more critical of quality than of amount of information, their ratings are clearly positive.

The significance of the ratings for these two items may depend on what view one wishes to take. From a positive view, 82 percent of the practitioners and administrators consider the amount of available information regarding issues, problems, and practices adequate, and 73 percent consider the quality of available information adequate. Thus, substantial majorities of these audiences are satisfied with the adequacy of this type of information. However, from a negative point of view, one may be concerned with the fact that over 20 percent of every subaudience (teachers, principals, other practitioner staff, LEA, ISA, and SEA administrators) consider the quality of available information inadequate, and over 15 percent of every subaudience consider the amount inadequate.

TABLE III.5 QUESTION I: ABOUT YOURSELF AND YOUR WORK

3. In your opinion, is the information available to (audience) about educational issues, problems, and practices:

		PRACTITIONERS			ADMINISTRATORS				Chi Square P-Level
Nr.	QUESTIONNAIRE ITEM	TEACH	PRIN.	OTHER	LEA	ISA	SEA	TOTAL	
	006: Amount of Information Available								N.S.
(1)	Very adequate	25.4	30.9	22.8	29.5	20.3	26.5	26.2	
(2)	Somewhat adequate	57.5	52.7	57.9	51.8	60.9	58.4	56.3	
(3)	Somewhat inadequate	11.9	11.5	17.3	16.1	14.1	13.3	14.0	
(4)	Very inadequate	5.2	4.8	2.0	2.7	4.7	1.8	3.5	
	N =	193	165	197	112	64	113		
	007: Quality of Information Available								N.S.
(1)	Very adequate	16.6	17.7	17.6	17.1	9.7	15.2	16.4	
(2)	Somewhat adequate	54.3	56.7	59.6	60.2	61.3	49.1	56.6	
(3)	Somewhat inadequate	24.6	20.1	18.6	16.7	21.0	31.3	21.9	
(4)	Very inadequate	4.6	5.5	4.3	5.6	8.1	4.5	5.1	
	N =	175	164	188	108	62	112		
	NOTE: This question appeared only on Practitioner and Administrator forms. Other audiences were asked about their need for information in a number of broad subject areas.								

D. WORK ACTIVITIES IN EDUCATION

1. INTRODUCTION

The Education Information Use Model (Figure 1 in Volume 1, page I-2) suggests that position is a major predictor of purposes for seeking information and of sources used or preferred. The field interview data confirmed that type of position is a significant predictor for both purposes and sources. However, the very small sizes of the subaudiences and the open-ended responses of the field interviews precluded analyses going beyond treating types of positions as binary (0,1) variables. Given the significant field interview results for type of position, the mail survey questionnaire was redesigned to include a work activity profile, i.e., a list of work activities which respondents were asked to rate as high, moderate, or low in degree of importance in their work in education. Responses to the listed items (High, Moderate, Low) would provide a simple profile that would identify more precisely the character of each respondent's work activity. Our assumption was that the work profile would provide more effective prediction of purposes, sources used, preferred products and services, etc. than position types alone. We also suspected that typing persons by work activity profiles (rather than subaudiences) would lead to a substantially richer understanding of how type of work is related to information needs.

The attempt to generate a reasonably inclusive list of work activities proved to be a difficult task, chiefly because information (e.g., job or task analyses) regarding the work activities of most subaudiences was not found or proved to be inadequate. The field interview data provided a significant supplement, which was especially useful in describing governance audience work. It soon became apparent that the total list was unreasonably long and that it would contain too many irrelevant items for any one subaudience. After several trial partitions, six sets of work activities were selected, one each for: (1) school practitioners, (2) elementary and secondary administrators, (3) higher education chiefs and institutional researchers, (4) education faculty and social scientists, (5) school boards, and (6) legislators and aides.* After this partition had been selected, the items on the six lists were refined by reviewing the field interview schedules to confirm that the items were sufficiently inclusive and that the wording was at least generally consistent with the concepts if not the language of the field interviews. Finally the six lists were examined for comparability.**

The results discussed below are arranged by the six forms (audiences). Each section presents tabular information on the following aspects of work activities. First, the degree of importance ratings (High, Moderate, Low) is reported by subaudience for each work activity. Second, the chi square test significance levels are reported. Significant differences indicate that the response distributions for the two (or three) subaudiences are not attributable to chance. (NS indicates not significant at .05 level; * significant at .05 level, ** significant at .01 level, *** significant at .001 level.) Third, the percentage of each subaudience who indicated that they made a special effort during the past year to find information relating to the work activity is reported. Fourth, the chi-square test significance levels of subaudience differences in distributions (did/did not make a special effort to secure information) are reported. Finally, the correlations between the ratings of degree of importance and made a special effort are reported.*** These correlations indicate the extent to which importance of work activity is associated with tendency to make a special effort to find information. Since these correlations are seriously restricted, they substantially underestimate the relationship; however, their relative values are informative, since the correlations are relatively larger for some work activities than for others.

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* Initially, the four higher education subaudiences were treated as one group and the four governance subaudiences were treated as one group; however, these combined lists were too long and had too many items that would not be especially relevant for some subaudiences.

** Since we anticipated performing multi-variate analyses examining work activity and other data variables across the entire sample, this examination was concerned with which items could be treated as "equivalent" or whether one could reasonably assume that nearly every member of a subaudience would have rated an omitted item as "low" in degree of importance. In some cases a general work activity (e.g., dealing with legal problems or educational legislation) was subdivided into two or three more specific items for a particular form (e.g., the legislative form contains a number of specific legislative items).

*** These are zero-order Pearson product-moment correlations with degree of importance scaled 1, 2, 3, and made a special effort treated as a binary variable scored 0,1. Since we may assume that both variables have an underlying continuous distribution, these correlations are substantially restricted. If the Peters and Voorhis (1940) correction formula is applied, the values reported should be multiplied by 1.43 (assuming coarse grouping of a normal distribution and scores as index values centered about the mid-points of intervals).

Following the presentation and discussion of these data for each form, a second section presents the intercorrelations among work activities together with the results of a factor analysis of the intercorrelations. The correlations provide information on the extent to which pairs of work activities tend to be associated in terms of rated degree of importance. The factor analyses provide an indication of the primary "dimensions" of respondent work activity.*

2. PRACTITIONERS

Table III.6 displays the responses for the practitioner audience. The chi square tests of differences in the responses for teachers, "other" staff, and principals indicate that there are statistically significant differences among the three subaudiences on every work activity listed, and that the great majority are beyond the .001 level of significance.**

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* The intercorrelations and the factor analyses reported in these tables are uncorrected for coarse grouping. Since all variables are three category index values, the correction for coarse grouping would be 1.36, that is, the correlations reported are approximately only three-fourths as large as they might have been if degree of importance had been rated on a scale with substantially more intervals.

**The reader is cautioned that the significance levels reported are not exact. The levels reported assume a simple random sampling of respondents while, in fact, school districts were cluster-sampled with subsamples of teachers, "other" staff, and principals drawn from each. The clustering has been ignored both in computing the percentages and in computing significance levels. On the one hand, clustering tends to reduce the effective N on which to base a significance test. On the other hand, the possible effect of correlation between subaudiences (due to sampling from the same school district) is also ignored. Generally, the effect of clustering is to reduce the level of significance. If there is a positive correlation between subaudiences, this would raise the significance level. Fortunately, the differences are so large that more exact tests would confirm that the differences indicated are in fact significant, albeit at possibly different levels of significance.

TABLE III.6 QUESTION I. ABOUT YOURSELF AND YOUR WORK (PRACTITIONERS)

4. Needs for information are affected by the nature of the work one does. To help us identify the general nature of your work, please consider each of the following types of activities. Decide how significant a part of your work it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor which you think is relevant.

5. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

		DEGREE OF IMPORTANCE									Chi Square	Made Special Effort to Find Information during past year			Chi Square	Corr Impor
		TEACHERS N ≥ 200			OTHER STAFF N ≥ 200			PRINCIPALS N ≥ 178			P-Level				P-Level	vs. Effort
Nr.	QUESTIONNAIRE ITEM	High	Mod.	Low	High	Mod.	Low	High	Mod.	Low		TEACH.	OTHER	PRIN.		
	Work Activity in Education	%	%	%	%	%	%	%	%	%		%	%	%		r
(A)	Teaching or counseling students	90.7	8.8	0.5	77.2	16.0	6.8	46.4	44.3	9.3	***	42.4	33.8	9.1	***	.29
(B)	Handling disciplinary or other student problems	55.6	32.7	11.7	23.9	42.3	33.8	67.0	27.6	5.4	***	27.1	16.2	24.6	*	.35
(C)	Sponsoring or supervising extracurricular activities.	13.8	34.0	52.2	8.0	23.5	68.5	30.4	26.4	33.4	***	11.2	3.8	4.3	**	.23
(D)	Preparing lessons	85.8	11.8	2.5	28.0	20.5	51.5	8.4	12.4	79.2	***	32.7	9.5	4.4	***	.41
(E)	Curriculum planning	44.9	40.5	14.6	36.6	34.1	29.3	62.6	29.9	7.5	***	24.3	21.9	26.2	NS	.35
(F)	Selecting instructional materials	60.3	31.4	8.3	45.0	25.2	29.7	41.1	44.3	14.6	***	40.0	31.0	17.6	***	.28
(G)	Looking for new methods	67.3	29.3	3.4	53.2	37.1	9.8	55.1	41.1	3.8	**	50.2	38.6	25.1	***	.26
(H)	Determining educational needs	65.4	27.8	6.8	61.6	28.1	10.3	76.6	21.2	2.2	**	21.0	22.9	24.1	NS	.17
(I)	Establishing educational objectives . . .	55.4	37.7	6.9	47.1	35.3	17.6	65.9	30.8	3.3	***	18.0	18.6	26.2	NS	.21
(J)	Evaluating program outcomes	48.5	36.3	15.2	42.4	38.5	19.0	71.7	25.0	3.3	***	16.1	16.7	22.5	NS	.28
(K)	Acquiring new knowledge or skills	69.3	27.8	2.9	64.5	31.5	3.9	45.1	51.6	3.3	***	39.5	36.7	16.6	***	.27
(L)	Scheduling (space, students, staff) . . .	19.1	33.8	47.1	36.9	26.1	36.9	71.6	21.3	7.1	***	7.3	11.9	17.6	**	.32
(M)	Preparing school budgets or financial plans	6.4	9.4	84.2	12.3	18.1	69.6	32.1	33.7	34.2	***	3.4	5.7	10.2	**	.32
(N)	Performing other administrative functions	4.5	17.5	78.0	14.8	31.5	53.7	57.7	40.1	2.2	***	1.0	3.8	6.4	**	.24
(O)	Working with parents or community	37.7	44.1	18.1	45.4	36.2	18.4	77.8	21.6	0.5	***	9.3	17.1	20.3	**	.21
(P)	Working with school boards.	7.8	27.8	64.4	8.3	24.8	67.0	23.7	41.9	34.4	***	3.4	2.9	2.7	NS	.16
(Q)	Conducting studies of investigations . .	3.9	36.6	59.5	11.9	38.3	49.8	16.3	49.5	34.2	***	4.9	8.1	8.0	NS	.18
(R)	Providing pre- or inservice teacher training	8.9	32.2	58.9	15.9	38.8	45.3	29.3	55.4	15.2	***	6.8	13.8	19.8	***	.37
(S)	Developing educational materials	30.9	37.3	31.9	19.3	34.2	46.5	8.7	40.4	50.8	***	17.6	12.4	4.8	***	.34
(T)	Consulting or advising others on educational matters.	15.9	43.8	40.3	46.3	36.0	17.7	39.3	48.1	12.6	***	5.9	11.4	8.0	NS	.22

Teachers. Inspection of the responses for teachers indicates that the work activities rated "high" by the majority include: teaching or counseling students (91%), preparing lessons (86%), acquiring new knowledge or skills (69%), looking for new methods (67%), determining educational needs (65%), selecting instructional materials (60%), handling disciplinary problems (55%). By contrast, very few teachers rate these activities "high": conducting studies or investigations (4%), performing other administrative functions (4.5%), preparing school budgets or financial plans (6%).

"Other" Staff. Like teachers, the substantial majority of "other" staff (heads of departments, subject matter specialists, curriculum and instructional staff, librarians, counselors, social workers, visiting teachers, school psychologists, school nurses, and other miscellaneous, non-administrative professional classifications) also rate as "high importance": teaching or counseling students (77%), acquiring new knowledge or skills (64.5%), determining educational needs (62%), and looking for new methods (53%); however, lesson preparation is not frequently rated of high importance (28% versus 86% for teachers), nor is selecting instructional materials (45% versus 60% for teachers). Compared to teachers, "other" staff are more heavily engaged in consulting or advising others on educational matters (46% versus 16% rating "high") and in scheduling (37% versus 19%).

Principals. The work activities of school principals stand in greatest contrast to teachers; "other" staff are usually intermediate. Somewhat less than half (46%) of the principals rate teaching or counseling students of "high importance," and only a few (8%) rate preparing lessons high. Note, however, that a larger percentage of principals (67%) than teachers (56%) or "other" staff (24%) indicate that handling disciplinary or other student problems is of high importance. Other work activities rated of high importance by the majority of principals include: working with parents or community (78%), determining educational needs (77%), evaluating program outcomes (72%), scheduling (72%), establishing educational objectives (66%), curriculum planning (63%), performing other administrative functions (58%), and looking for new methods (55%).

Low Importance Activities. Only two work activities are rated of low importance by the majority of principals: preparing lessons (79%) and developing educational materials (51%). There are five work activities rated of low importance by the majority of "other" staff: preparing school budgets or financial plans

(70%), sponsoring or supervising extracurricular activities (68.5%), working with school boards (67%), performing other administrative functions (54%), and preparing lessons (52%). There are six items rated of low importance by the majority of teachers: preparing school budgets (84%), performing other administrative functions (78%), working with school boards (64%), conducting studies or investigations (59.5%), providing pre- or inservice teacher training (59%), and sponsoring or supervising extracurricular activities (59%).

Special Efforts to Find Information. Respondents were also asked to review this same list of work activities and mark the activity "if you made any kind of special effort during the past year to find information relating to that activity." There are significant differences among the percentages for the three practitioner subaudiences who indicated that they had made a special effort to find information on 13 of the 20 work activities listed. In only one instance did a majority of any practitioner subaudience make special effort: just over half (50.2%) of the teachers indicated that they had made a special effort to obtain information in looking for new methods. Focusing only on those work activities where the significance level exceeds .001, we find the following differences: teaching or counseling students (42% teachers, 34% "other" staff, 9% principals), preparing lessons (33% teachers, 9.5% "other" staff, 4% principals), selecting instructional materials (41% teachers, 31% "other" staff, 18% principals), looking for new methods (50% teachers, 39% "other" staff, 25% principals), acquiring new knowledge or skills (39.5% teachers, 37% "other" staff, 17% principals), providing pre- or inservice teacher training (7% teachers, 14% "other" staff, 20% principals), and developing educational materials (18% teachers, 12% "other" staff, 5% principals). Averaging over the entire list of twenty work activities we find that the average percentages are: 19% for teachers, 17% for "other" staff, and 15% for principals. These differences among the three subaudiences are too small to be significant, so we may conclude that while school practitioners tend to make grossly equivalent efforts to find information, their information seeking effort is directed to markedly different types of work activities.

Having observed some of the differences, it may also be instructive to note the similarities. These three groups of school practitioners are not greatly different in the efforts to find information for: curriculum planning (22% to 26%), determining education needs (21% to 24%), establishing educational objectives (18% to 26%), or evaluating program outcomes (16% to 22.5%). Note that these are all related activities concerned with instructional program planning. Although the groups report these activities as being of different degrees of importance in their work, very similar proportions of each group indicated they made a special effort during the past year to find information in these areas. There is a final group of work activities where there are no differences among the three groups in effort made to find information. These activities are generally characterized by relatively low importance ratings and low percentages of practitioners who sought information concerning them. They include: working with school boards (approximately 3% of each group made a special effort to find information), conducting studies or investigations (5% to 8%), and consulting or advising others (6% to 11%).

Correlations Between Importance of Work Activity and Making a Special Effort to Find Information. The last column in the table reports the Pearson product-moment correlations between degree of importance (scaled 1, 2, 3), and level of information-seeking effort (scaled 0, 1). Because of the restriction due to coarse grouping, the correlations are all of modest size (.16 to .41), but generally indicate that there is some, but not a strong tendency for individuals' ratings of importance of a work activity to be related to making a special effort to find information concerning that work activity.* On the other hand, if we compute correlations across the 20 work activities (% marking "high importance" with % marking "made special effort"), we find markedly higher correlations (.88 for teachers, .84 for "other" staff, and .76 for principals), indicating that there is a strong relation between the general level of importance of work activity for a subaudience and the amount of information-seeking effort that subaudience makes to find information about different work activities.

3. THE PATTERN OF SCHOOL PRACTITIONER WORK

Up to this point we have focused on similarities and differences among the three school practitioner subaudiences in their ratings of importance of individual activities in their work, on the differences among subaudiences in effort made to find information, and finally on the relation between importance of the work activity and effort to find information concerning it. These 20 work activities are not unrelated to each other. In fact, there is good reason to suspect that the majority would fall into only a few major clusters or types of similar activities. Using the degree of importance measures (scaled High = 1, Moderate = 2, Low = 3), the 20 work activities were intercorrelated and then factor-analyzed (principal axis solution and varimax rotation of all factors with Eigenvalues greater than 1.0). Table III.7 presents the results.* The first column of numbers in this table reports the item means (averages) which range from 1.33 for teaching or counseling students (high average importance) to 2.43 for working with school boards (low average importance). The next two columns report the standard deviations and the Ns on which the means and standard deviations are based. The next column presents the variable number (18 through 37). The next 20 columns display the table of intercorrelations (decimals omitted). For example, teaching or counseling students is correlated .14 with variable # 19 (handling disciplinary problems), -.03 with variable # 20 (sponsoring or supervising extracurricular activities), and .41 with variable # 21 (preparing lessons). As we scan across the entire row of correlations for this work activity, we see that teaching or counseling students is correlated most positively with variable # 21 (preparing lessons) and most negatively (-.34) with variable # 31 (performing other administrative functions). Because there are so many correlations in the table, it is a difficult task to see patterns.

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* We may assume that importance and effort are continuously distributed. However, the Pearson correlations are severely restricted due to coarse grouping. If corrected, the correlations would be approximately 1.43 larger than those reported.

We can turn to the factor loadings reported in the last five columns of the table for some help here. Factors I through V represent five independent "dimensions" of work.** Factor I displays the largest loadings on variable # 26 establishing educational objectives (.79); # 25, determining educational needs (.71); # 27, evaluating program outcomes (.66); # 22, curriculum planning (.58); # 24, looking for new methods (.46); and # 23, selecting instructional materials. This set of variables (# 22 through # 27) seem to focus on instructional program

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* Correction for coarse grouping would increase the size of reported correlations and factor loadings by approximately 1.36. Variables are ordered in the same sequence in this table as in the previous table, but they are numbered 18 through 37.

**These five factors extracted 60.3% of the total covariance among the 20 sets of ratings of importance of work activities. (Eleven factors extracted 81%.)

TABLE III.7 QUESTION I.4 ABOUT YOURSELF AND YOUR WORK (PRACTITIONERS)

Means, Standard Deviations, Correlations, and Rotated Factor Loadings for Importance Ratings of 20 Practitioner Work Activities.
(Decimals Omitted for Correlations and Factor Loadings.)

FORM P					CORRELATIONS																			
Work Activity in Education	Mean	Standard Deviation	N	Variable	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
Teaching or counseling students	1.33	.57	594	18	-	14	-03	41	-06	07	05	-04	-01	-03	16	-18	-29	-34	-06	-10	-08	-22	10	-10
Handling disciplinary or other student problems	1.69	.75	591	19	14	-	25	07	14	04	06	10	12	12	-01	21	09	16	22	16	11	08	05	00
Sponsoring or supervising extracurricular activities	2.35	.75	587	20	-03	25	-	-07	07	-03	-05	-03	05	06	-08	18	16	20	15	24	13	06	04	05
Preparing lessons	2.00	.92	582	21	41	07	-07	-	15	41	20	05	09	02	17	-32	-26	-50	-30	-15	-26	-23	30	-31
Curriculum planning	1.70	.75	597	22	-06	14	07	15	-	50	34	47	54	50	10	30	34	22	23	29	24	38	29	21
Selecting instructional materials	1.68	.75	591	23	07	04	-03	41	50	-	41	35	33	30	21	01	20	-02	-01	11	00	20	40	07
Looking for new methods	1.47	.60	595	24	05	06	-05	20	34	41	-	43	38	34	34	07	15	-01	11	10	11	28	31	12
Determining educational needs	1.39	.61	592	25	-04	10	-03	05	47	35	43	-	62	50	19	22	21	14	32	24	23	36	22	24
Establishing educational objectives	1.54	.66	590	26	-01	12	05	09	54	32	38	62	-	64	19	24	24	16	30	22	23	36	26	21
Evaluating program outcomes	1.59	.71	593	27	-03	12	06	02	50	30	34	50	64	-	23	30	30	27	35	29	29	40	23	24
Acquiring new knowledge or skills	1.43	.56	592	28	16	-01	-08	17	10	21	34	19	19	23	-	00	-04	-13	15	03	12	16	30	13
Scheduling (space, students, staff)	1.90	.85	590	29	-18	21	18	-32	30	01	07	22	24	30	00	-	41	48	37	30	28	31	02	27
Preparing school budgets or financial plans	2.47	.76	591	30	-29	09	16	-26	34	20	15	21	24	30	-04	41	-	55	19	36	28	38	12	26
Performing other administrative functions	2.21	.81	585	31	-34	16	20	-50	22	-02	-01	14	18	27	-13	48	55	-	32	36	28	37	-04	32
Working with parents or community	1.60	.70	596	32	-06	22	15	-30	23	-01	11	32	30	35	15	37	19	32	-	38	40	38	08	34
Working with school boards	2.43	.71	597	33	-10	16	24	-15	29	11	10	24	22	29	03	30	36	36	38	-	39	34	17	26
Conducting studies or investigations	2.38	.67	590	34	-08	11	13	-26	24	00	11	23	23	29	12	28	28	28	40	39	-	42	22	41
Providing pre- or inservice teacher training	2.23	.73	587	35	-22	08	06	-23	38	20	28	36	36	40	16	31	38	37	38	34	42	-	33	44
Developing educational materials	2.23	.76	589	36	10	05	04	30	29	40	31	22	26	23	30	02	12	-04	08	17	22	33	-	25
Consulting or advising others on educational matters	1.90	.75	587	37	-10	00	05	-31	21	07	12	24	21	24	13	27	26	32	34	26	41	44	25	-

Variable	Factor I	Factor II	Factor III	Factor IV	Factor V
18	-00	-08	-55	11	14
19	11	03	-07	00	53
20	-05	07	10	00	45
21	14	-41	-54	56	07
22	58	09	21	36	19
23	40	-08	03	63	-01
24	46	14	-06	34	-08
25	71	19	05	11	00
26	79	15	04	10	10
27	66	24	11	11	15
28	22	28	-28	23	-11
29	24	26	38	-10	34
30	19	18	62	19	22
31	12	26	67	-10	30
32	30	52	06	-19	30
33	16	36	23	10	38
34	14	59	14	04	20
35	31	54	31	20	03
36	15	33	-13	59	02
37	13	60	20	07	00

planning and improvement. We note from the means that all these work activities are rated as moderately high in importance (1.47 to 1.70). Factor I is thus well identified as an instructional planning work dimension. The correlations among the importance ratings in this group of work activities range from .30 to .64 (and they would be somewhat larger if not restricted by the coarse grouping of the three-point work importance scale).

Factor II is identified by several moderately high positive loadings including variables # 60, consulting or advising others (.60); # 34, conducting studies or investigations (.59); # 35, providing pre- or inservice teacher education (.54); # 32, working with parents or community (.52); and by one major negative loading, # 21, preparing lessons (-.41). We note that there are several other modest positive loadings on Factor II including variables # 27, evaluating program outcomes (.24); # 28, acquiring new knowledge or skills (.28); # 29, scheduling (.26); # 31, performing administrative functions (.26); # 33, working with school boards (.36); and # 36, developing educational materials (.33). This suggests that Factor II represents a complex of "staff"-type activities which are especially associated with consulting, conducting studies, providing teacher training, and working with parents or community, but which are not associated with teaching, and negatively associated with lesson preparation. In general, principals and "other" staff will tend to be associated with the positive side of Factor II, and teachers with the negative side of this "staff work" factor.

Factor III is well defined by pairs of positive and negative loadings. On the positive side are variables # 30, preparing school budgets or financial plans (.62) and # 31, performing other administrative functions (.67). On the negative side are variables # 18, teaching or counseling students (-.55) and # 21, preparing lessons (-.54). This is a bipolar dimension that most starkly separates the work of the administrator from the work of the teacher.*

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* Note that variables # 18 (teaching) and # 21 (lesson preparation) display a parallel pattern of negative correlations with variables # 29 through # 35 and # 37. In general, if practitioners indicate that teaching and lesson preparation are important, then they tend to rate the other "administrative" activities as less important.

Factor IV is identified primarily with just three work activities: variable # 21, preparing lessons (.56); # 23, selecting instructional materials (.63); and # 36, developing educational materials (.59). There are also more modest loadings on variables # 22, curriculum planning (.36) and # 24, looking for new methods (.34). Factor IV is thus concerned with instructional lessons and materials preparation. (Contrast with Factor I which is concerned with the more general activities of instructional program planning.)

Factor V is identified by two major loadings on variables # 19, handling disciplinary problems (.53) and # 20, sponsoring or supervisory extracurricular activities (.45), and also by lesser loadings on three other variables: # 31, performing other administrative functions (.30); # 32, working with parents or community (.30); and # 33, working with school boards (.38). All of these activities seem to be especially associated with the principal's role.

To summarize, factor analysis of the 20 activities rated for importance in their work by nearly 600 practitioners indicates that at least five dimensions are needed to account for even 60% of the covariation among these 20 work activities.* The five dimensions may be labelled:

Factor I	Instructional Program Planning
Factor II	"Staff" Activities
Factor III	Administration versus Teaching
Factor IV	Instructional Development
Factor V	Dealing With Students (Disciplinary and Extracurricular), Parents, and School Boards.

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* If the squared loadings are summed across the five factors, we obtain the communality estimates for the factor solution. For instance, the communality for variable # 18 (teaching or counseling students) is .34, which indicates that only 34% of the total variance of this variable is accounted for in the five-factor analysis. Other items with relatively low communalities (below .40, communality in parens) include: variable # 19, handling disciplinary or other student problems (.30); # 20, extracurricular activities (.22); # 24, looking for new methods (.31), # 28, acquiring new knowledge or skills (.27); and # 33, working with school boards (.36). Although increasing the number of factors would increase these communalities, many of these added factors would have high loadings on only one or two items. Stated simply, each of these low communality items is relatively independent of all other items. Hence, the work activity of school practitioners is a fairly complex domain of many separate dimensions.

Plot of Factors I and III. Pairs of factors may be plotted two-dimensionally as illustrated in Figure III.1. This particular pair of factors seems especially important to examine since this pair of dimensions depicts the relation between administration and teaching (Factor III, the vertical dimension) and instructional program planning (Factor I, the horizontal dimension). Here we see that administrative functions (14) and school budgeting (13) define the high end of Factor III, and teaching/counseling (1) and preparing lessons (4) define the low end.* Factor I is defined by four activities: establishing objectives (9), determining needs (8), evaluating outcomes (10), and curriculum planning (5). Of these four, only curriculum planning displays even a modest (positive) loading on Factor III. A number of activities (those within the small circle) are not heavily loaded on either dimension; these include: consulting (20), working with school boards (16), extracurricular activities (3), conducting studies (17), handling student discipline and other student problems (2), and developing educational materials (19). Three activities display modest loadings on both dimensions: scheduling (12) and teacher preparation (18) are on the administrative side of Factor III, while acquiring new knowledge or skills (11) is on the teaching side of Factor III. Three other work activities are unrelated to Factor III, but have modest loadings on Factor I: working with parents or community (15), selecting instructional materials (6), and looking for new methods (7). Perhaps the chief importance of this figure is the graphic illustration of the fact that while administrative and teaching work activities are highly opposed,** the importance of either of these two types of work tells us very little about how these practitioners will rate work activities dealing with instructional program planning (objectives, needs, evaluation, curriculum planning). Moreover, these two factors suggest that scheduling and teacher training will be considered important by those who are concerned with both administrative functions and program planning.

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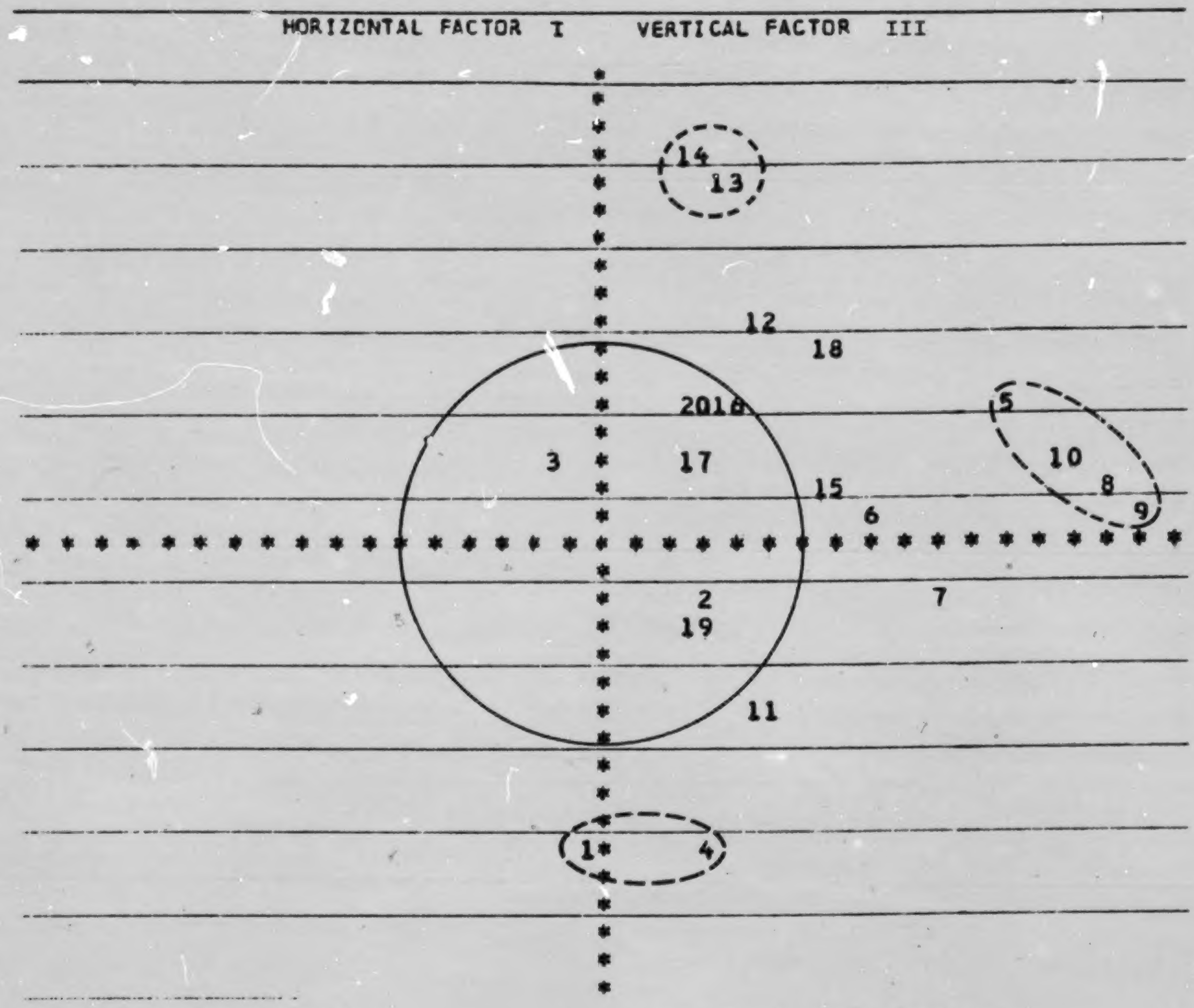
* Please note that the numbering employed in the figure does not correspond to the variable numbers employed in Table III.7.

**Indicating only that if persons mark one type of activity as of high importance in their work, they tend to mark the other as of low importance.

FIGURE III.1

PLOT OF FACTORS I AND III
SCHOOL PRACTITIONER WORK ACTIVITIES



1 Teaching or Counseling
2 Student Discipline Problems
3 Extra Curricular Activities
4 Preparing Lessons
5 Curriculum Planning
6 Selecting Instructional Materials
7 Looking for New Methods
8 Determine Needs
9 Establish Objectives
10 Evaluate Outcomes
11 Acquire New Knowledge
12 Scheduling
13 School Budgets
14 Administrative Functions
15 Parents/Community
16 School Boards
17 Studies
18 Teacher Training
19 Develop Educational Materials
20 Consulting

4. ADMINISTRATORS

Elementary and secondary education administrators (LEA, ISA, SEA staff) were presented with the list of 17 work activities displayed in Table III.8. Compared to the results for school practitioners who displayed highly significant differences in their ratings of importance on every work activity, the results for school administrators are remarkable in the fact that there are so many work activities where there are no significant differences among LEA, ISA, and SEA administrators. The first five activities (A-E, "instructional program planning" activities) are rated about the same by all three subaudiences. There are also no differences for items (K), dealing with educational problems or educational legislation; (M), planning or maintaining support services; (N), performing administrative liaison functions, (O), working with, informing, securing support of community leaders, legislators, others; and (Q), conducting studies and investigations.

The type of work activities where we do find differences among the three levels (local, intermediate, state) are those primarily concerned with personnel, fiscal, and facilities management. Each significant item is briefly discussed below.

(F) Appraising Teacher or Administrator Effectiveness. The differences in this item are predictable; importance increases as one moves closer to local school operations. ISA importance ratings are intermediate, SEA ratings least.

(G) Providing Pre- or Inservice Training. The same kind of hypothesis fails for this item. Here 68% of ISA staff indicate high importance versus 37% for LEA and 46% for SEA staff. Note that this activity is tied with (A), determining educational needs, as the two most important activities performed by intermediate unit (ISA) staff.

(H) Providing Pupil Personnel Services. Apparently this is an important activity for only a minority of administrators at any level. It is only slightly more important at the LEA than at the ISA level, but is clearly of relatively little importance among SEA staff.

TABLE III.8 QUESTION I. ABOUT YOURSELF AND YOUR WORK (ADMINISTRATORS)

4. Needs for information are affected by the nature of the work one does. To help us identify the general nature of your work, please consider each of the following types of activities. Decide how significant a part of your work it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor which you think is relevant.

5. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

		DEGREE OF IMPORTANCE									Chi Square P-Level	Made Special Effort to Find Information during past year			Chi Square P-Level	Corr. Impor vs Effort
		LEA STAFF N ≥ 113			ISA STAFF N ≥ 64			SEA STAFF N ≥ 107								
Nr.	QUESTIONNAIRE ITEM	High	Mod.	Low	High	Mod.	Low	High	Mod.	Low		LEA	ISA	SEA		
	Work Activity in Education	%	%	%	%	%	%	%	%	%		%	%	%		r
(A)	Determining educational needs	67.2	18.5	14.3	67.7	26.2	6.2	62.2	28.8	9.0	NS	28.6	30.8	25.6	NS	.28
(B)	Establishing educational goals and objectives	63.6	22.0	14.4	60.0	35.4	4.6	55.0	33.3	11.7	NS	27.7	29.2	26.5	NS	.32
(C)	Evaluating educational programs	52.1	28.6	19.3	49.2	30.8	20.0	53.5	30.7	15.8	NS	26.1	23.1	31.6	NS	.28
(D)	Curriculum planning and development	47.1	26.9	26.1	50.8	29.2	20.0	37.8	26.1	36.0	NS	32.8	24.6	18.8	*	.39
(E)	Developing educational programs or materials	40.3	34.5	25.2	45.3	37.5	17.2	30.6	33.3	36.0	NS	24.4	20.0	14.5	NS	.34
(F)	Appraising teacher or administrator effectiveness.	39.5	35.3	25.2	36.9	26.2	36.9	23.9	28.4	47.7	**	24.4	18.5	11.1	*	[illegible]
(G)	Providing pre- or inservice training. . . .	37.0	39.5	23.5	67.7	26.2	6.2	46.4	29.5	24.1	***	26.1	36.9	16.2	**	[illegible]
(H)	Providing pupil personnel services (records, guidance, counseling, etc.)	20.3	32.2	47.5	21.5	21.5	56.9	13.6	14.5	71.8	**	18.5	7.7	2.6	***	.41
(I)	Developing or negotiating teacher or administrator salaries, or other personnel matters	27.7	27.7	44.5	14.1	23.4	62.5	8.3	13.0	78.7	***	22.7	7.7	2.6	***	.55
(J)	Financial plans, budgets, or other financial matters	56.3	25.2	18.5	31.3	26.6	42.2	42.6	30.6	26.9	**	28.6	7.7	11.1	***	.34
(K)	Dealing with legal problems or educational legislation	34.7	29.7	35.6	23.4	37.5	39.1	33.3	39.6	27.0	NS	32.8	18.5	21.4	*	.33
(L)	Planning acquisition or maintenance of facilities and equipment	41.0	31.6	27.4	12.5	31.3	56.3	23.4	25.2	51.4	***	20.2	10.8	6.0	**	.38
(M)	Planning or maintaining support services (e.g., transportation, food, library) . . .	31.6	25.6	42.7	18.8	25.0	56.3	20.2	23.9	56.0	NS	16.8	3.1	4.3	***	.26
(N)	Performing administrative liaison functions	50.4	41.0	19.5	45.3	42.2	12.5	37.7	49.1	13.2	NS	11.8	4.6	9.4	NS	.20
(O)	Working with, informing, securing support of community leaders, legislators others	41.5	39.0	19.5	33.8	4.15	24.6	39.3	31.3	29.5	NS	16.8	15.4	12.0	NS	.25
(P)	Consulting or advising other educators on educational matters	33.0	49.6	17.4	64.6	26.6	10.8	62.8	25.7	11.5	***	10.9	23.1	15.4	NS	.19
(Q)	Conducting studies and investigations . .	29.2	47.8	23.0	20.0	55.4	24.6	32.1	48.2	19.6	NS	15.1	13.8	12.0	NS	.31

(I) Developing or Negotiating Teacher or Administrator Salaries or Other Personnel Matters. This also is a work activity important to only a few. Like appraising teacher or administrator effectiveness (F), the hypothesis of increased importance as one moves closer to local school operations is vividly sustained.

(J) Financial Plans, Budgets, or Other Financial Matters. This is a relatively important activity at all levels, but the "high importance" order is LEA (56%), SEA (43%), then ISA (31%).

(P) Consulting or Advising Other Educators on Educational Matters. ISA (65%) and SEA (63%) administrators and staff exhibit highly similar distributions for this item. It is an item of substantial importance for most of their staff. These percentages contrast with only 33 percent of LEA staff rating this item high. Presumably LEA staff are major clients for ISA and SEA consultants and advisors.

LEA Staff. If we ask what are the "high importance" work activities for the majority of LEA staff, we find that there are only five: (A), determining educational needs (67%); (B), establishing goals and objectives (64%); (J), financial plans, budgets, or other financial matters (56%); (C), evaluating program outcomes (52%); and (N), performing administrative liaison functions (50%). However, it is remarkable that at least 20 percent of LEA respondents marked every one of the 17 listed activities of high importance. There are no really unimportant items on the list.

ISA Staff. There are also five work activities rated of high importance by the majority of ISA staff. Two are common with those listed by the majority of practitioners: (A), determining educational needs (68%) and (B), establishing educational goals and objectives (60%). Note that (C), evaluating programs, rated as high by the majority of practitioners, just missed an ISA majority (49%), however, (D), curriculum planning and development, which barely missed a majority (47%) for LEA staff, is on the majority list for ISA staff (51%). We have previously noted that (G), providing pre- or inservice training (68%) was tied as the most important activity for ISA staff and that (P), consulting or advising (65%) is also of substantial importance for the majority of ISA staff. Note also that there are four work activities rated as of "low importance" by the majority of ISA staff: (H), providing pupil personnel services (57%); (I), developing or negotiating salaries or other personnel matters (62%); (L), planning acquisition or maintenance of facilities and equipment (56%), and (M), planning or maintaining support services (56%). Given this contrast in high and low importance of work activities, it is apparent that ISA functions are much more heavily concerned with instructional programs, consulting, and inservice training, and much less with personnel, facilities, and support services.

SEA Staff. Like LEA and ISA staff, those in state agencies place high importance on (A), determining needs (62%); (B), establishing educational goals and objectives (55%); and (C), evaluating educational programs (54%). The only other activity rated high by the majority (63%) is (P), consulting or advising. Exactly the same four "low importance" work activities among ISA staff are rated by the majority of SEA staff as of low importance: (H), pupil personnel services (72%); (I), salaries and personnel matters (79%); (L) facilities and equipment (51%); and support services (56%).

Special Effort to Find Information. Differences among the three levels of administrative staffs in the percentages who indicated that they had made any kind of special effort during the past year to find information relating to that activity tend to mirror those found for differences in importance of work activity. Generally there are few differences for the "instructional program" activities, but the majority of personnel, fiscal, and facility management activities show statistically significant differences among the three groups. With one exception, (G), inservice training, we find that LEA staff indicate the highest percentage among the three staff levels who made a special effort for any of the work activities where there is a statistically significant difference. This includes (D), curriculum planning and development; (F), appraising teacher or administrator effectiveness; (H), pupil personnel services; (I), salaries and other personnel matters; (J), financial plans, budgets, or other financial matters; (K), legal problems and educational legislation; (L), facilities and equipment; and (M), support services. We thus see that there is strong evidence that LEA staff do make more efforts than ISA and SEA staff to find the information they need for a substantial variety of personnel, fiscal, legal, facilities, and support services management activities. Generally larger percentages of ISA staff than SEA staff report making a special effort on those work activities where there are significant differences; however, there are two exceptions: (J), financial, and (K), legal, where slightly higher percentages of SEA staff than ISA staff report making any kind of special effort to find information. What these differences among the three levels mean is subject to various interpretations. Generally, high information-seeking effort is related to high work importance. This is clearly confirmed by the correlations (last column of the table) which range between .19 and .55 for the 17 work activities, but average .37 for the nine work activities where there are significant differences among levels of staff making a special effort to find information.* However, the correlation is far from perfect. We need to perform an analysis of covariance, controlling for rated importance of work activity, to see if the differences in reported information-seeking effort among the three groups would still be significant.**

There is one final observation on the relation between importance of work activity and effort to find information. If we correlate across the 17 work activities the percentages rating the activity as being of high importance and the percentages who report they made any kind of special effort to find information for each work activity, we obtain the following results: LEA, .43; ISA, .81; and SEA, .80. The much higher correlations for ISA and SEA staff are partly understood if one inspects the distributions of percentages of special effort to find information for each group; note that the ranges are: LEA, 10.9 to 32.8%; ISA, 3.1 to 30.8%; and SEA, 4.3 to 31.6%. Considering each staff as a group (rather than as individuals), ISA and SEA staff are far more variable in the proportion of persons who report making special efforts to find information, and this variability is more highly associated with the average importance which that group rates their work activity. LEA staff are more uniform, tending to make somewhat similar (and comparatively higher) amounts of effort to find information, regardless of the average importance of each work activity for LEA staff.

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* Average correlation based on converting r to Z-transformations, finding Z-transformation average and converting back to r. Note if this average r (.37) is corrected for coarse grouping, the corrected r = .53, which suggests that there is a moderately high relationship of work importance and effort made by individuals.

**This analysis has not been performed. If it proves significant, one would still be faced with the question of whether the difference is due to differences among the three groups in their information-seeking motivation or in their relative access to needed information sources.

5. THE PATTERN OF EDUCATIONAL ADMINISTRATOR WORK

The importance ratings of the 17 work activities rated by administrators were intercorrelated and factor-analyzed. The results are reported in Table III.9. The entries in this table are read in the same way as those for school practitioners discussed earlier. We see that the work importance rating means range from 1.45 (high importance) for determining educational needs to 2.44 (low importance) for developing or negotiating teacher or administrator salaries or other personnel matters. The factor analysis extracted three factors with Eigenvalues above 1.0.*

Factor I is highly similar to the first factor found in the school practitioner analysis, instructional program planning. It includes work activities 18 through 24: determining educational needs, establishing goals and objectives, evaluating program outcomes, curriculum planning and development, developing educational materials, and (with lower loadings) appraising teacher or administrator effectiveness, and providing pre- or inservice training.

Factor II is associated with four work activities: # 29, planning acquisition or maintenance of facilities (.71); # 30, planning or maintaining support services (.66); # 27, financial plans, budgets, or other fiscal matters (.59); and # 26, developing or negotiating teacher or administrator salaries (.54). Factor II thus identifies the business officer type of work, which is often separated from instructional program concerns.

Factor III is identified by the following work activities: # 32, working with or informing or securing support of community leaders (.61); # 28, dealing with legal problems or educational legislation (.57), # 31, performing other

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* Three more factors were just below the 1.0 Eigenvalue cut-off. The first three factors account for 51.9 percent of the covariance, the first six account for 69 percent. (Nine factors are required to account for 81.7 percent.) Recall that the school practitioner analysis employed five factors to account for 60 percent of the covariance, while five factors account for 63 percent in the administrator analysis. Hence, the work complexity of administrators may be comparable to that of the school practitioners, despite the fact that fewer factors are reported.

TABLE III.9 QUESTION I.4 ABOUT YOURSELF AND YOUR WORK (ADMINISTRATORS)

Means, Standard Deviations, Correlations, and Rotated Factor Loadings for Importance Ratings of 17 Administrator Work Activities. (Decimals Omitted for Correlations and Factor Loadings.)

FORM A Work Activity in Education	Mean	Standard Deviation	N	Variable	CORRELATIONS 18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	Variable	Factor I	Factor II	Factor III
Determining educational needs	1.45	.68	295	18	-	75	56	48	42	23	28	21	03	08	03	-02	-10	06	16	29	06	18	69	-13	15
Establishing educational goals and objectives	1.52	.69	294	19	75	-	60	54	51	30	36	21	04	12	04	04	-09	09	18	27	05	19	78	-07	14
Evaluating educational programs	1.66	.77	298	20	56	60	-	61	44	45	30	16	05	07	-08	09	-07	04	26	24	10	20	72	-02	15
Curriculum planning and development	1.84	.84	295	21	48	54	61	-	66	37	45	16	11	-01	-06	07	-04	-04	11	13	-01	21	81	06	-13
Developing educational programs or materials	1.90	.80	294	22	42	51	44	66	-	34	48	22	09	-06	06	10	08	05	12	19	01	22	72	11	-06
Appraising teacher or administrator effectiveness	2.03	.83	293	23	23	30	45	37	34	-	29	14	41	24	17	23	03	20	31	11	11	23	46	26	23
Providing pre- or inservice training	1.73	.77	296	24	28	36	30	45	48	29	-	15	09	-00	03	-01	-01	01	09	23	03	24	51	-00	03
Providing pupil personnel services (records, guidance, counseling, etc.)	2.41	.78	293	25	21	21	16	16	22	14	15	-	15	11	16	04	12	06	16	04	07	25	25	12	13
Developing or negotiating teacher or administrator salaries, or other personnel matters	2.44	.77	291	26	03	04	05	11	09	41	09	15	-	45	34	34	34	20	30	-04	12	26	11	54	28
Financial Plans, budgets, or other financial matters	1.81	.83	291	27	08	12	07	-01	06	24	-00	11	45	-	47	42	38	28	37	-12	18	27	05	59	38
Dealing with legal problems or educational legislation	2.01	.81	293	28	03	04	08	-06	-06	17	03	16	34	47	-	20	27	23	42	14	30	28	-02	31	57
Planning acquisition or maintenance of facilities and equipment	2.14	.83	288	29	-02	04	09	07	10	23	-01	04	34	42	20	-	59	24	12	-17	05	29	07	71	04
Planning or maintaining support services (e.g., transportation, food, library)	2.26	.83	290	30	-10	-09	-07	-04	08	03	-01	12	34	38	27	59	-	18	16	-15	10	30	-06	66	09
Performing administrative liaison functions	1.67	.67	295	31	06	09	04	-04	05	20	01	06	20	28	23	24	18	-	39	24	24	31	03	18	48
Working with, informing, securing support of community leaders, legislators, others	1.85	.78	295	32	16	18	26	11	12	31	09	16	30	37	42	12	16	39	-	26	21	32	19	19	61
Consulting or advising other educators on educational matters	1.62	.71	293	33	29	27	24	13	19	11	23	04	-04	-12	14	-17	15	24	26	-	28	33	27	-35	46
Conducting studies and investigations	1.94	.71	290	34	06	05	10	-01	01	11	03	07	12	18	30	05	10	24	21	28	-	34	03	03	45

administrative liaison functions (.48); # 33, consulting or advising other educators on educational matters (.46); and # 34, conducting studies and investigations. These activities are not strongly intercorrelated, but tend to cluster together around professional staff concerns with securing support and supporting others (community, legal, liaison, consulting or advising, conducting studies).

Note that one activity, # 25, providing pupil personnel services, is not strongly associated with any of these first three factors.*

To summarize, slightly over half of the total covariation among the 17 administrator work activities were accounted for by three factors:

Factor I	Instructional Program Planning
Factor II	Business Administration
Factor III	Special Support Functions (Community outreach, legal, liaison, consulting, studies, and investigations).

6. HIGHER EDUCATION ADMINISTRATION (CHIEFS AND INSTITUTIONAL RESEARCHERS)

As we turn to this group, we need to remind the reader that the sample sizes are now appreciably smaller: N ≥ 68 for chief administrative officers and N ≥ 55 for institutional researchers. However, unlike the practitioner and administrator samples, we are no longer dealing with cluster sampling, thus, SRS tests of significance are more closely (but not exactly) appropriate.**

It is not surprising that chief administrators and institutional researchers, although perhaps being concerned with the same range of activities related to the management of higher education institutions, should report highly significant

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* Items with communalities below .4 include: # 23 (.33), # 24 (.27), # 25 (.09), # 26 (.38), # 31 (.26), and # 34 (.20).

**Institutional researchers were simple random samples from the Association of Institutional Researchers membership (with an effective sampling fraction of .06) and chiefs were selected by stratified random sampling higher education institutions with stratification based on the Carnegie classification and size of enrollment. Institutions were selected by PPS, using student enrollment as a measure of size.

TABLE III.15 QUESTION I. ABOUT YOURSELF AND YOUR WORK (HIGHER EDUCATION ADMINISTRATION)

4. Needs for information are affected by the nature of the work one does. To help us identify the general nature of your work, please consider each of the following types of activities. Decide how significant a part of your work it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor which you think is relevant.

5. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

		CHIEF ADMIN. OFF. N ≥ 68			INST. RESEARCHERS N ≥ 55			Chi Square	Special Effort to Find Information during year		Chi Square	Corr. Impor vs. Need
Nr.	QUESTIONNAIRE ITEM	High	Mod.	Low	High	Mod.	Low	P-Level			P-Level	
	Work Activity in Education	%	%	%	%	%	%		%	%		r
(A)	Establishing institutional goals and objectives	81.2	18.8	0.0	32.7	47.3	20.0	***	31.9	20.0	NS	.31
(B)	Program planning and development (academic, research, service)	78.3	20.3	1.4	56.4	27.3	16.4	**	42.0	20.0	**	.34
(C)	Reviewing or evaluating programs	86.8	13.2	0.0	45.5	45.5	9.1	***	40.6	25.5	NS	.33
(D)	Developing personal policies, negotiating salaries or other personnel matters	60.9	33.3	5.8	7.3	27.3	65.5	***	34.8	10.9	**	.37
(E)	Developing budgets or financial plans	69.6	27.5	2.9	40.0	32.7	27.3	***	26.1	20.0	NS	.33
(F)	Securing and establishing sources of funding	27.5	33.3	39.1	23.6	23.6	52.7	NS	15.9	16.4	NS	.47
(G)	Planning or managing allocation and utilization of resources	68.1	29.0	2.9	47.3	38.2	14.5	**	33.3	25.5	NS	.36
(H)	Planning or managing facilities and equipment	20.3	58.0	21.7	16.4	30.9	52.7	***	14.5	12.7	NS	.29
(I)	Planning or managing support services (e.g., housing, transportation, library)	15.9	40.6	43.5	9.1	16.4	74.5	**	7.2	1.8	NS	.24
(J)	Developing and administering admissions and student personnel policies, including recruitment, testing, records, counseling, placement, etc.	15.9	43.3	34.8	10.9	18.2	70.9	***	11.6	9.1	NS	.54
(K)	Making enrollment projections, describing student body characteristics	33.3	47.8	18.8	65.5	23.6	10.9	***	20.3	36.4	NS	.42
(L)	Conducting studies or surveys of current status of institutional programs or activities	34.8	55.1	10.1	63.6	23.6	12.7	***	15.9	27.3	NS	.16
(M)	Long-range institutional planning	76.8	20.3	2.9	63.6	29.1	7.3	NS	34.8	32.7	NS	.30
(N)	Working with, informing, securing support of institutional administrators and staff	70.7	20.3	0.0	70.9	23.6	5.5	NS	11.6	14.5	NS	.11
(O)	Working with, informing, securing support of alumni, community leaders, legislators, others	26.1	34.8	39.1	16.4	30.9	52.7	NS	7.2	9.1	NS	.39
(P)	Consulting or advising other educators on education matters	14.7	69.1	16.2	18.2	56.4	25.5	NS	7.2	7.3	NS	N.D.

differences in their views of the importance of these activities for their work. What may be as informative is to note where there are no differences (see Table III.10): (F), securing and establishing sources of funding; (M), long-range institutional planning (high importance for both groups); (N), working with, informing, securing support of institutional administrators and staff (also high importance for both groups); (O), working with, informing, securing support of alumni, community leaders, legislators, others (moderate or low importance); and (P), consulting or advising others on educational matters (moderate importance for both).

Among the eleven work activities where there are statistically significant differences in rated importance, only two are more important for institutional researchers than for chiefs: (K), making enrollment projections, describing student body characteristics and (L), conducting studies or surveys of current status of institutional programs or activities. In both cases nearly two thirds of the institutional researchers, but only one third of the chiefs rated these activities as of high importance in their work. On the other hand, nine of the first ten work activities listed display statistically significant differences where chief administrators rate the activity as more important to their work than do the institutional researchers. These include establishing goals, program planning, evaluating programs, personnel, budgets and financial plans, allocation and utilization of resources, planning or managing facilities, equipment, or support services, and developing and administering admission and student personnel activities.

Chiefs. Half of the 16 activities listed were marked by the majority of the chiefs as of high importance in their work. Listed in descending order of percentages they are: (C), reviewing or evaluating programs (87%); (A), establishing institutional goals and objectives (81%); (B), program planning and development (78%), (M), long-range institutional planning (77%), (N), working with, informing, securing support of institutional administrators and staff (71%); (E), developing budgets and financial plans (70%); (G), planning or managing allocation and utilization of resources (68%); and (D), developing personnel policies, negotiating salaries, or other personnel matters (61%). Note that the remaining eight activities listed are of markedly lesser importance, e.g., the ninth-ranking activity, (L), conducting surveys or studies, is rated important by only 35 percent of the chiefs. None of the 16 activities is rated of low importance by the majority of the chief administrators.

Institutional Researchers. There are five activities rated of high importance in their work by the majority of institutional researchers: (N), working with, informing, or securing support of institutional administrators and staff (71%); (K), making enrollment projections, describing student body characteristics (66%); (L), conducting studies or surveys (64%); (M), long-range institutional planning (64%); and (B), program planning and development (56%). The majority of the institutional researchers rate six activities as low in importance in their work: (I), support services (74%); (J), student personnel (71%); (D), staff personnel matters (66%); (F), securing funding (53%); (H), planning and managing facilities and equipment (53%); and (O), working with alumni, community leaders, legislators, others (53%).

Special Effort to Find Information. There are only two statistically significant differences between chiefs and institutional researchers in their incidence of special effort to find information; in both cases the percentage of chiefs reporting special effort to find information is significantly higher than the percentage of institutional researchers: (B), program planning and development (42% versus 20%) and (D), developing personnel policies...(35% versus 11%). Note that in both cases there are also substantial corresponding differences between the two groups in the rated importance of these two activities. Perhaps more surprising is the fact that there are no other significant differences between the two groups in special effort to find information, given the many work activities where the two groups differ in their ratings of importance of the activities. Among chief administrators, the areas where special effort to find information is most likely, include the following: (B), program planning (42% reported making a special effort during the past year); (C), reviewing or evaluating programs (41%); (D), personnel matters (35%); (M), long-range institutional planning (35%); (G), allocation and utilization of resources (33%); (A), establishing institutional goals and objectives (32%); and (E), developing budgets and financial plans (26%). Top information effort percentages for institutional researchers include these activities: (K), making enrollment projections, describing student body characteristics (36%); (M), long-range institutional planning (33%); (L), conducting studies or surveys of current status of institutional programs or activities (27%); (C), reviewing or evaluating programs (26%); (G), planning or managing allocation and utilization of resources (26%).

Relation of Importance to Effort to Find Information. The last column of the table reports the correlations between importance ratings and effort to find information for each work activity. With the exception of item (N), working with administrators and staff, all of the correlations are statistically significant.* Importance of work activity is related to special effort to find information.

7. THE PATTERN OF HIGHER EDUCATION ADMINISTRATION WORK ACTIVITIES

Table III.11 displays the intercorrelation and factor analysis of work activity importance ratings for this pair of subaudiences (chiefs and institutional researchers). Five factors extracted 61 percent of the covariation among the 16 work activities.**

Factor III. The "instructional program" group identified as Factor I in both the school practitioner and in the elementary and secondary education administrator analyses, is here identified as Factor III. There are three items with substantial loadings: # 18, establishing institutional goals and objectives (.60); # 19, program planning and development (.49); and # 20, reviewing or evaluating programs (.66). Two other personnel-related items, # 21, developing personnel policies, negotiating salaries, or other personnel matters (.41), and # 27, student personnel activities (.35) also show modest loadings on this factor. Note that this factor, unlike Factor I in the two earlier analyses, has a broader institutional rather than a more purely instructional program character; goals

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* Correction for coarse grouping would increase the size by a factor of 1.43; however, assuming that the SRS formula for estimating the standard error is approximately correct, correlations of approximately .17 would be required at the .05 level and .22 at the .01 level.

**This compares closely with five factors to extract 60 percent for school practitioners and five factors to extract 63 percent for elementary and secondary education administrators.

TABLE III.11 QUESTION I.4 ABOUT YOURSELF AND YOUR WORK (HIGHER EDUCATION ADMINISTRATION)

Means, Standard Deviations, Correlations, and Rotated Factor Loadings for Importance Ratings of 16 Higher Education Administration Work Activities. (Decimals Omitted for Correlations and Factor Loadings.)

FORM H Work Activity in Education	Mean	Standard Deviation	N	Variable	CORRELATIONS 18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	Variable	Factor I	Factor II	Factor III	Factor IV	Factor V
Establishing institutional goals and objectives	1.49	.66	124	18	-	35	43	44	36	20	38	27	28	34	-09	06	25	-06	07	16	18	44	10	60	-08	06
Program planning and development (academic, research, service)	1.40	.64	124	19	35	-	36	25	16	12	18	16	26	16	-23	05	10	02	06	21	19	19	07	49	05	-11
Reviewing or evaluating programs	1.36	.56	123	20	43	36	-	25	13	05	14	-06	05	12	-15	12	16	09	07	22	20	-01	08	66	11	-01
Developing personnel policies, negotiating salaries or other personnel matters	1.95	.83	124	21	44	25	25	-	36	08	21	28	30	40	-09	-12	24	15	04	10	21	48	-02	41	-02	-01
Developing budgets or financial plans	1.57	.72	124	22	36	16	13	36	-	40	44	23	34	07	01	-14	24	02	19	21	22	55	34	12	02	-03
Securing and establishing sources of funding	2.19	.82	124	23	20	12	05	08	40	-	26	03	25	-08	-07	-22	12	-05	46	33	23	20	89	-0	-12	-15
Planning or managing allocation and utilization of resources	1.49	.64	124	24	38	18	14	21	44	26	-	36	35	04	-06	-03	23	07	16	18	24	59	19	11	14	-04
Planning or managing facilities and equipment	2.17	.72	124	25	27	16	-06	28	23	03	36	-	33	27	-02	-04	02	-04	02	-09	25	59	-13	03	-09	0
Planning or managing support services (e.g., housing, transportation, library)	2.44	.71	124	26	28	26	05	30	34	25	35	33	-	18	-0	-03	19	-06	15	09	26	53	16	12	-05	02
Developing and administering admissions and student personnel policies, including recruitment, testing, records, counseling, placement, etc.	2.37	.72	124	27	34	16	12	40	07	-08	04	27	18	-	14	-04	-11	-26	-01	-11	27	26	-16	35	-47	20
Making enrollment projections, describing student body characteristics	1.68	.73	124	28	-09	-23	-15	-09	01	-07	-06	-02	-0	14	-	37	19	-05	-01	-10	28	02	01	-24	-12	77
Conducting studies or surveys of current status of institutional programs or activities	1.64	.68	124	29	06	05	12	-12	-14	-22	-03	-04	-03	-04	37	-	24	29	16	24	29	14	-05	16	41	59
Long-range institutional planning	1.34	.57	124	30	25	10	16	24	24	12	23	02	19	-11	19	24	-	22	29	17	30	25	20	-14	33	27
Working with, informing, securing support of institutional administrators and staff	1.27	.50	124	31	-06	02	09	15	02	-05	07	-04	-06	-26	-05	29	22	-	17	29	31	01	02	06	62	04
Working with, informing, securing support of alumni, community leaders, legislators, others	2.23	.79	124	32	07	06	07	04	19	46	16	02	15	-01	-01	16	29	17	-	37	32	09	51	07	22	12
Consulting or advising other educators on education matters	2.04	.61	123	33	16	21	22	10	21	33	18	-09	09	-11	-10	24	17	29	37	-	33	-0	44	28	38	02

and objectives, program planning, and program evaluation provide the common thread through the three work activity factor analyses (practitioners, elementary and secondary education administrators, and higher education administrators), however the sampling focus on chief administrators and their institutional planning specialists carries with it a shift to an institutional perspective, which not surprisingly is also concerned to some degree with staff and student personnel matters as well as academic and other institutional programs.

Factor I. This is most clearly the "management" factor. Activities with appreciable loadings include: # 24, allocation and utilization of resources (.59); # 25, planning or managing facilities and equipment (.59); # 22, developing budgets or financial plans (.55); # 26, planning or managing support services (.53); # 21, developing personnel policies, negotiating salaries, or other personnel matters (.48); and # 18, establishing institutional goals and objectives (.44).

Factor II. This factor is most prominently associated with just one activity, # 23, securing and establishing sources of funding (.89), but the last two listed activities also show appreciable loadings: # 32, working with, informing, securing support of alumni, community leaders, legislators, others (.51); and # 33, consulting or advising other educators (.44).

Factor IV. This appears to be a staff coordination and planning factor. Activities with appreciable loadings include: # 31, working with, informing, securing support of institutional administrators and staff (.62); # 29, conducting studies and surveys of current status of institutional programs or activities (.41); # 33, consulting or advising other educators (.38); and # 30, long-range institutional planning (.33). Note that activity # 27, student personnel, has a marked negative loading (-.47).

Factor V. This is clearly an "institutional researcher" technical work activity factor identified primarily with two items: # 28, making enrollment projections, describing student body characteristics (.77), and # 29, conducting studies or surveys (.59).

Note that among the 16 activities # 27, student personnel, displays perhaps the greatest complexity with modest loadings on several factors.*

To summarize, five factors account for 61 percent of the covariation contained in the intercorrelations among the 16 activities rated for importance by higher education administrators. The five factors may be briefly labelled as:

Factor I	Management
Factor II	Fund Raising and External Relations
Factor III	Institutional Program Planning
Factor IV	Staff Coordination and Planning
Factor V	Institutional Research (Projections, Surveys, Studies).

8. HIGHER EDUCATION FACULTY

Two subaudiences are considered in this group: the faculty of schools and colleges of education and social scientists.** Note that there is some degree of overlap in the populations for these two subaudiences since education faculty may be AERA members significantly engaged in educational RDD&E.

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* The communality for this item is .49. Items with communalities below .40 include: # 19 (.30), # 25 (.38), # 26 (.33), # 30 (.31), # 31 (.39), and # 32 (.34). These relatively low communalities indicate that these items are not very well defined by all five of the factors retained in this solution. Inspection of the correlations for these items reveals that each is not very strongly correlated with most of the other items.

**Social scientists are defined as non-student AERA members indicating primary or secondary work activity in R, D, D, or E or its management (as opposed to activities such as teaching, counseling, or consulting). They were simple random-sampled. Faculty of schools and colleges of education were cluster-sampled (samples of two to five persons; with responses averaging one to three per institution) from faculties with stratification based on estimated size of faculty. Hence the sample size $N \geq 63$ for education faculty appreciably underestimates the real element variances as compared to variances based on SRS formulas. The total "effective N" for the two groups is possibly closer to 100. As a result, the significance levels reported, which assume SRS, are too liberal; however, perhaps only the one reported difference significant at the .05 level would prove to be non-significant if an exact test were performed.

Because substantial differences exist between the kinds of work these two audiences perform and those performed by higher education administrators, a separate listing of 12 activities was developed and used for educational faculty and social scientists in educational RDD&E. Table III.12 indicates that there are substantial differences between the two groups on 9 of the 12 activities. The only activities of comparable work importance are (D), conducting evaluation studies (an activity of typically intermediate importance); (G), consulting, advising, or providing technical assistance (also of moderate importance); and (J), working on academic committees, counsels, etc. (also of moderate importance for most persons). Of the nine statistically significant differences, educational faculty rate five work activities as of higher importance in their work than do social scientists. These include (A), teaching or counseling students (94% versus 75%); (B), preparing courses, lectures, etc. (89% versus 68%); (E), developing educational materials or programs (45% versus 40%--however, note that 28% of social scientists rate this activity low versus 11% of the educational faculty); (I), managing or administering academic programs (32% versus 9%!); and (L), working with local schools or communities regarding educational problems (47% versus 25%).

By contrast, the social scientists rate the following activities as being of higher importance than do the educational faculty: (C), conducting research studies (60% for social scientists versus 22% for education faculty); (F), preparing reports, articles, and speeches (50% versus 27%); (H), managing R&D programs or projects (25% versus 5%); and (K), proposals for funded projects (32% versus 13%).

None of these differences are at all surprising; however, their magnitudes do emphasize that there are decidedly different, if overlapping patterns of work for these two subaudiences.

Educational Faculty. Two obvious activities are prominent among the educational faculty: teaching or counseling students (rated of high importance by 94%) and preparing courses, lectures, etc. (89%). Three other activities are of high or at least moderate importance for over 80 percent: working with local school or communities, developing educational programs or materials, and consulting, advising, or providing technical assistance. By contrast, the two activities that are rated of low importance by the great majority are: (H), managing R&D programs (77% rated it "low"), and (K), preparing proposals (62% rated it "low").

TABLE III.12 QUESTION I. ABOUT YOURSELF AND YOUR WORK (HIGHER EDUCATION FACULTY)

4. Needs for information are affected by the nature of the work one does. To help us identify the general nature of your work, please consider each of the following types of activities. Decide how significant a part of your work it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor which you think is relevant.

5. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

		EDUCATION FACULTY N ≥ 63			SOCIAL SCIENTIST N ≥ 67			Chi Square	Special Effort to Find Information during year		Chi Square	Corr. Impor vs. Need
Nr.	QUESTIONNAIRE ITEM	High	Mod.	Low	High	Mod.	Low	P-Level			P-Level	
	Work Activity in Education	%	%	%	%	%	%		%	%		r
(A)	Teaching or counseling students	93.8	4.7	1.6	75.0	16.2	8.8	**	35.9	30.9	NS	.25
(B)	Preparing courses, lectures, etc.	89.1	10.9	0.0	67.6	22.1	10.3	**	43.8	38.2	NS	.29
(C)	Conducting research studies	21.9	32.8	45.3	59.7	29.9	10.4	***	21.9	42.6	**	.41
(D)	Conducting evaluation studies	21.9	45.3	32.8	39.7	38.[illegible]	22.1	NS	18.8	26.5	NS	.37
(E)	Developing educational materials or programs.	45.3	43.8	10.9	39.7	32.4	27.9	*	39.1	35.3	NS	.43
(F)	Preparing reports, articles or speeches	27.0	50.8	22.2	50.0	42.6	7.4	**	20.3	35.3	NS	.35
(G)	Consulting, advising, or providing technical assistance	40.6	48.4	10.9	30.9	55.9	13.2	NS	21.9	23.5	NS	.19
(H)	Managing R&D programs or projects	4.7	18.8	76.6	25.0	27.9	47.1	***	0.0	7.4	NS	.33
(I)	Managing or administering academic programs	31.7	27.0	41.3	8.8	30.9	60.3	**	7.8	8.8	NS	.36
(J)	Working on academic committees, councils, etc.	32.8	46.9	20.3	20.6	52.9	26.5	NS	14.1	10.3	NS	.27
(K)	Preparing proposals for funded projects	12.7	25.4	61.9	32.4	33.8	33.8	**	15.6	27.9	NS	.41
(L)	Working with local schools or communities regarding educational problems or projects	46.8	35.5	17.7	25.4	35.8	38.8	**	23.4	13.2	NS	.40

Social Scientists. Four activities dominate the "high" importance work of the majority of the social scientists. (A), teaching and counseling students (75%), and (B), preparing courses, lectures, etc. (68%), are the same top two as indicated by educational faculty. Note carefully, these are on-campus academic social scientists engaged in educational RDD&E. The vast majority appears to be faculty members heavily, but not exclusively engaged in teaching, and not necessarily employed in departments or schools of education. The important thing to note is that the activity ratings indicate that a somewhat larger number (75%) rate teaching or counseling students of high importance than is the case for conducting research studies (60%). This latter activity, however, is the third in percentage rating it high in importance. The fourth activity is (F), preparing reports, articles, or speeches (50%). Only one of the 12 activities is rated by the majority (60%) as being of low importance in their work: (I), managing or administering academic programs.

Special Effort to Find Information. Despite the many differences in rated importance of work activities, there is only one activity where the two groups display a statistically significant difference in the percentages reporting that they made a special effort to find information during the past year: 43% of the social scientists, but only 22% of the educational faculty, report making a special effort to find information in conducting research studies. Other areas where approximately a (combined) fourth or more of the two audiences made special efforts to find information include: preparing courses, lecture, etc.; developing educational materials; teaching or counseling students; and preparing reports, articles, or speeches. Special efforts to find information are rarely associated with management, whether it be of R&D or academic programs; however, note that these activities are of relatively low importance for the majority of these two subaudiences.

Relation of Importance of Work Activity to Making a Special Effort to Seek Information. Although the correlations are of modest size, ranging from .19 to .43, all appear to be statistically different from zero, thus indicating that rated importance of the activity is related to making special efforts to find information for all 12 work activities.*

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* Again it should be emphasized that the reported correlations are restricted due to coarse grouping of response categories. The correction is approximately 1.43.

9. PATTERNS OF WORK ACTIVITIES FOR EDUCATIONAL FACULTY AND SOCIAL SCIENTISTS

Table III.13 displays the correlations and factor analysis loadings of the 12 work activity ratings made by these two subaudiences. Four factors accounted for 64 percent of the covariation.*

Factor I. Management of R&E. There are five activities with substantial loadings on this factor: # 25, managing R&D programs or projects (.74); # 28, preparing proposals for funded projects (.60); # 20, conducting research studies (.56); # 23, preparing articles, reports, and speeches (.55); and # 21, conducting evaluation studies (.34). Note that the loadings for research, evaluation, and development are respectively .56, .34, .17, which suggests that the RD&E activities managed are predominantly concerned with research and sometimes evaluation, but seldom with development; moreover, management of R&E is negatively associated with teaching or counseling students (-.27) and with preparing courses, lectures, etc. (-.26).**

Factor II. Teaching and Preparation. This factor is clearly defined by the very high loadings on the first two activities: # 18, teaching or counseling students (.88), and # 19, preparing courses, lectures, etc. (.83). Note also the very modest positive loading for # 27, working on academic committees, councils, etc. (.38), and # 26, managing or administering academic programs.***

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* This result compares with approximately five factors required to extract 60 percent in the previously presented factor analysis results for other audiences. Note, however, that only 12 activities are involved here as compared to 20 for practitioners, 17 for elementary and secondary education administrators, and 16 for higher education administrators.

** Inspection of the correlations indicates that management of R&D (# 25) is negatively correlated (-.31) with both teaching (# 18) and course preparation (# 19). Adjustment for coarse grouping would increase these correlations by 1.36 to -.42. Although negative, this is still a relatively small value which suggests that management of research is not incompatible with teaching, but that those heavily engaged in one activity may be engaged only moderately in the other.

***Neither of these two activities is well defined in the four-factor solution; their respective communalities are # 27 (.28) and # 26 (.14). There are several other activities with communalities under .40: # 22, developing educational materials or programs (.28); # 23, preparing reports, articles, speeches (.32); and # 24, consulting, advising, or providing technical assistance (.25). These several items with low communalities suggest that the present list of activities is relatively efficient; inspection of the correlations suggests that the present listing of 12 items could be reduced by possibly only 2 items (combining # 18 and # 19; # 25 and # 28).

TABLE III.13 QUESTION I.4 ABOUT YOURSELF AND YOUR WORK (HIGHER EDUCATION FACULTY)

Means, Standard Deviations, Correlations, and Rotated Factor Loadings for Importance Ratings of 12 Higher Education Faculty Work Activities. (Decimals Omitted for Correlations and Factor Loadings.)

FORM E Work Activity in Education	Mean	Standard Deviation	N	Variable	CORRELATIONS												Variable	Factor I	Factor II	Factor III	Factor IV
					18	19	20	21	22	23	24	25	26	27	28	29					
Teaching or counseling students	1.21	.52	132	18	-	82	-18	-15	03	-17	04	-31	23	30	-32	23	18	-27	88	09	02
Preparing courses, lectures, etc.	1.27	.55	132	19	82	-	-18	-23	04	-16	09	-31	14	31	-31	22	19	-26	83	09	-04
Conducting research studies	1.86	.82	131	20	-18	-18	-	49	-15	45	-15	39	-10	-18	35	-22	20	56	02	-35	72
Conducting evaluation studies	1.96	.77	132	21	-15	-23	49	-	22	18	09	39	09	-14	32	17	21	34	-14	25	54
Developing education materials or programs	1.77	.76	132	22	03	04	-15	22	-	13	18	16	17	16	19	36	22	17	03	50	-04
Preparing reports, articles or speeches	1.76	.69	131	23	-17	-16	45	18	13	-	14	44	-01	08	27	-03	23	55	-0	04	11
Consulting, advising or providing technical assistance	1.77	.63	132	24	04	09	-15	09	18	14	-	10	14	13	12	43	24	09	-05	49	-04
Managing R&D programs or projects	2.46	.74	132	25	-31	-31	39	39	16	44	10	-	02	-06	55	-10	25	74	-18	09	10
Managing or administering academic programs	2.31	.78	131	26	23	14	-10	09	17	-01	14	02	-	22	11	17	26	10	21	27	-08
Working on academic committees, councils, etc.	1.97	.71	132	27	31	31	-18	-14	16	08	13	-06	22	-	00	16	27	10	38	21	-28
Preparing proposals for funded projects	2.24	.80	131	28	-32	31	35	32	19	27	12	55	11	00	-	04	28	60	-20	20	09
Working with local schools or communities regarding educational problems or projects	1.93	.80	129	29	23	22	-22	17	36	-03	43	-10	17	16	04	-	29	-17	13	77	15

Factor III. Practice Improvement. This factor seems to be concerned with university "extension" and practice improvement. Variable # 29, working with local schools or communities regarding educational problems or projects, displays the highest loading (.77). This factor is also identified with # 22, developing educational materials or programs (.50), and # 24, consulting, advising, or providing technical assistance (.49). Note that activity # 20, conducting research studies, has a modest negative loading (-.35) while # 21, conducting evaluation studies, is small, but positive (.25).

Factor IV. Research and Evaluation. While Factor I concentrates on the management of R&E, this factor is purely concerned with its conduct. Aside from a very small negative loading with # 27, working on academic committees, councils, etc. (-.28), this factor is virtually independent of all activities except: # 20, conducting research studies (.72), and # 21, conducting evaluation studies (.54). Because these two items also have loadings on Factor I, this fourth factor primarily accounts for the residual part of the correlation between research and evaluation, after the effect of R&D management is removed.*

To summarize, factor analysis of the 12 activities resulted in 4 factors, accounting for 64% of the covariation. They are:

Factor I	Management of R&E (29.7%)
Factor II	Teaching and Preparation (17.7%)
Factor III	Practice Improvement (11.5%)
Factor IV	Research and Evaluation (5.5%).

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* The corrected (for coarse grouping) correlations between research, evaluation, development, teaching, and consulting are:

		(R)	(E)	(D)	(T)	(C)
Research	(R)	--	.67	-.20	-.24	-.20
Evaluation	(E)		--	.30	-.20	.12
Development	(D)			--	.04	.24
Teaching	(T)				--	.05
Consulting	(C)					--

Aside from the substantial correlation between research and evaluation, each of these five activities is moderately independent of the others.

10. SCHOOL BOARD MEMBERS

Local and state school board members were presented with the list of 13 activities displayed in Table III.14. Despite the relatively small size of these two samples, all but 3 of the 13 activities are rated differently by the two groups.* The three non-significant activities are: (D), study specific board agenda items (a high importance activity for local and state board members); (G), monitoring and advising on operations of school systems (an activity of moderate importance for both groups), and (M) handling special problems (also of moderate importance to most board members).

State board members display substantially higher concerns than local board members on five activities: (A), studying educational issues to determine needs, problems, policy alternatives (94% of state board members rated this activity as being of "high" importance in their work as compared to 58% of the local board members); (B), holding public hearings on educational matters (65% versus 27%); (C), conferring with special interest or citizen's groups on educational matters (53% versus 22%); (J) analyzing the effects of or making recommendations regarding educational legislation (79% versus 25%); and (K), preparing articles, speeches, reports on educational topics (46% versus 7%).

Local school board members rate the following five work activities significantly higher in importance for their work than do state board members: (E), establishing personnel policy or reviewing decisions to hire, transfer, or terminate (50% versus 9%); (F), establishing policy for management of ongoing functions of school systems (45% versus 24%); (H), reviewing educational budgets or financial plans (71% versus 27%); (I), evaluating the worth or merit of educational programs (52% versus 50% rate it "high"; note, however, that only 8% of local board

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* Both groups were cluster-sampled with four or five board members subsampled from each local or state board. However, return rates are unusually low: 28 percent for local boards and 35 percent for state boards. Because there typically are only 1 or 2 responses from each board, the obtained sample for state boards approaches a SRS of 20 of the 50 state boards and a stratified (by enrollment size) random sampling of local boards. Because of the cluster-sampling, SRS estimates of element variances would be underestimates, and the significance levels for chi squares indicated in the table are too liberal. Most of the differences found are of such a large magnitude that they would probably be significant if tested by more appropriate methods.

TABLE III.14 QUESTION I. ABOUT YOURSELF AND YOUR WORK (SCHOOL BOARDS)

4. Needs for information are affected by the nature of the work one does. To help us identify the general nature of your work, please consider each of the following types of activities. Decide how significant a part of your work it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor which you think is relevant.

5. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

		LOCAL BOARD N ≥ 96			STATE BOARD N ≥ 32			Chi Square	Special Effort to Find Information during year		Chi Square	Corr. Impor vs. Need
Nr.	QUESTIONNAIRE ITEM	High	Mod.	Low	High	Mod.	Low	P-Level			P-Level	
	Work Activity in Education	%	%	%	%	%	%		%	%		r
(A)	Studying educational issues to determine needs, problems, policy alternatives	58.3	35.4	6.3	94.1	2.9	2.9	***	27.8	44.1	NS	.33
(B)	Holding public hearings on educational matters	26.8	40.2	33.0	64.7	26.5	8.8	***	9.3	23.5	NS	.29
(C)	Confering with special interest or citizen's groups on educational matters.	21.6	46.4	32.0	52.9	41.2	5.9	***	10.3	29.4	**	.34
(D)	Studying specific board agenda items for intent, impact, fiscal or legal implications	52.1	42.7	5.2	58.8	29.4	11.8	NS	29.9	20.6	NS	.33
(E)	Establishing personal policy or reviewing decisions to hire, transfer, or terminate	49.5	33.0	17.5	8.8	29.4	61.8	***	27.8	2.9	**	.32
(F)	Establishing policy for management of ongoing functions of school systems.	44.8	42.7	12.5	23.5	32.4	44.1	***	17.5	11.8	NS	.33
(G)	Monitoring and advising on operation of school systems	26.0	45.8	28.1	8.8	50.0	41.2	NS	5.2	2.9	NS	.23
(H)	Reviewing educational budgets or financial plans	71.1	24.7	4.1	27.3	36.4	36.4	***	35.1	5.9	**	.31
(I)	Evaluating the worth or merit of educational programs.	52.1	39.6	8.3	50.0	21.9	28.1	**	22.7	23.5	NS	.29
(J)	Analyzing the effect of or making recommendations regarding educational legislation.	24.7	50.5	24.7	79.4	17.6	2.9	***	8.2	32.4	***	.12
(K)	Preparing articles, speeches, reports on educational topics. . . .	7.2	27.8	64.9	45.5	21.2	33.3	***	7.2	32.4	***	.47
(L)	Responding to constituents requests for information on educational topics	28.9	41.2	29.9	5.9	38.2	55.9	**	14.4	8.8	NS	.21
(M)	Handling special problems or board assignments relating to education.	40.2	44.3	15.5	23.5	44.1	32.4	NS	9.3	11.8	NS	.20

members rate this item of "low" importance, while 28% of the state board members rate it of "low" importance); and (L), responding to constituents' requests for information on educational topics (29% versus 6%).

These large differences present a picture of major contrasts between the activities and perspectives of local and state board members.

State School Board Members. The work activities of high importance for the majority of this group include: (A), study educational issues (94%); (J) analyzing the effects of or making recommendations regarding educational legislation (79%); (B), holding public hearings (65%); (D) studying specific board agenda items for intent, impact, fiscal, or legal implications (59%); (C), conferring with special interest or citizen's groups on educational matters (53%); and (I), evaluating the worth or merit of educational programs (50%). There are two activities rated "low" by the majority: (E), establishing personnel policy or reviewing decisions to hire, transfer, or terminate (62%), and (L), responding to constituents' requests for information (56%).

Local School Board Members. Work activities rated "high" in importance by the majority include: (H), reviewing educational budgets or financial plans (71%); (A), study educational issues to determine needs, problems, policy alternatives (58%); (D), study specific board agenda items for intent, impact, fiscal, or legal implications (52%); and (I), evaluating the worth or merit of educational programs (52%). Only one activity is rated of "low" importance by the majority of local board members, (K), preparing articles, speeches, reports on educational topics (65%).

Special Efforts to Find Information. There may be significant differences between the percentages of local and state board members who made special efforts to find information on five activities. In three cases it appears that state board members made more frequent effort, and in two cases it is local board members who made more frequent effort. In all cases the direction of the differences corresponds to the direction of significant differences between boards on their importance ratings. In three cases, (C), conferring with special interest or citizen's groups; (J), analyzing or making recommendations regarding legislation; and (K), preparing articles, speeches, or reports, nearly a third of the state board members indicate that they made a special effort during the past year to find information relating to each of these activities, compared to ten percent or less of the local board members. On the other hand, 28 percent of local board members (versus 3% for state board members) made special efforts to find information relating to (E), personnel policies or actions, and 35 percent of local board members (versus 6% of state board members) made special efforts to find information relating to (H), reviewing educational budgets or financial plans.

Relationship Between Importance of School Board Activities and Efforts to Find Information. With the exception of activity (J), analyzing the effects of or making recommendations regarding educational legislation, all of the correlations between these two variables are probably significantly different from zero, the largest being .47 for (K), preparing articles, speeches, and reports.*

11. THE PATTERN OF SCHOOL BOARD WORK

Factor analysis loadings, correlations, and variable distribution statistics are reported in Table III.15. Only three factors, accounting for a total of 55 percent of the covariation, had Eigenvalues above the 1.0 cut-off level.**

Factor I. Policy, Budgets, Agenda, and Problems. The first factor, which accounts for over half of the extracted covariation, had substantial loadings on 8 of the 13 activities. In rank order of loading size, the represented activities include: # 25, review budgets or financial plans (.67); # 30, handling special problems or board assignments (.64); # 23, establishing management policy (.63); # 22, establishing personnel policy or rewiewing personnel decisions (.62); # 29, responding to constituents' requests for information (.58); # 21, study specific board agenda items for intent, impact, fiscal, or

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* If corrected for coarse grouping, these correlations are multiplied by 1.43; the .47 correlation would then be estimated at .67.

**A fourth factor had an Eigenvalue of .98, and probably should have been extracted since its addition would have raised the cumulative percentage of covariation extracted to 62. Hence, it appears that the factoral complexity of school board activity is comparable to that of the educational faculty and social scientists.

TABLE III.15 QUESTION I.4 ABOUT YOURSELF AND YOUR WORK (SCHOOL BOARDS)

Means, Standard Deviations, Correlations, and Rotated Factor Loadings for Importance Ratings of 13 School Boards Audience Work Activities. (Decimals Omitted for Correlations and Factor Loadings.)

FORM B Work Activity in Education	Mean	Standard Deviation	N	Variable	CORRELATIONS													Variable	Factor I	Factor II	Factor III
					18	19	20	21	22	23	24	25	26	27	28	29	30				
Studying educational issues to determine needs, problems, policy alternatives	1.38	.59	130	18	-	39	38	22	00	19	16	-01	24	36	27	15	28	18	19	51	28
Holding public hearings on educational matters	1.90	.79	131	19	39	-	49	08	-07	-03	06	-13	09	27	34	15	-04	19	-03	59	04
Conferring with special interest or citizen's groups on educational matters	1.95	.74	131	20	38	49	-	20	03	12	27	-04	09	36	45	35	30	20	24	81	-15
Studying specific board agenda items for intent, impact, fiscal or legal implications	1.53	.62	130	21	22	08	20	-	28	30	19	42	26	08	-09	28	35	21	51	06	07
Establishing personnel policy or reviewing decisions to hire, transfer, or terminate	1.90	.82	131	22	00	-07	03	28	-	44	35	46	28	02	06	32	38	22	62	-07	04
Establishing policy for management of ongoing functions of school systems	1.82	.76	130	23	19	-03	12	30	44	-	34	41	34	01	-15	26	38	23	63	-06	12
Monitoring and advising on operation of school systems	2.10	.72	130	24	16	06	27	19	35	34	-	27	21	25	07	36	34	24	49	19	06
Reviewing educational budgets or financial plans	1.52	.71	130	25	-01	-13	-04	42	46	41	27	-	30	-03	-27	28	34	25	67	-26	07
Evaluating the worth or merit of educational programs	1.62	.71	128	26	24	09	09	26	28	34	21	30	-	27	01	22	34	26	45	08	40
Analyzing the effect of or making recommendations regarding educational legislation	1.80	.74	131	27	36	27	36	08	02	00	25	-03	27	-	36	01	15	27	06	50	47
Preparing articles, speeches, reports on educational topics	2.40	.76	130	28	27	34	45	-09	06	-15	07	-27	-01	36	-	03	08	28	-11	59	07
Responding to constituents' requests for information on educational topics	2.14	.76	131	29	15	15	35	28	32	26	36	28	22	01	03	-	44	29	58	24	-26
Handling special problems or board assignments relating to education	1.84	.73	131	30	28	-04	30	35	38	38	34	34	34	15	08	44	-	30	64	18	05

legal implications (.51); and # 26, evaluating the worth or merit of educational programs (.45).

Factor II. Communication Regarding and Analysis of Educational Issues. This second factor accounts for a third of the extracted covariation. Activities with substantial loadings include: # 20, conferring with special interest or citizen's groups on educational matters (.81); # 19, holding public hearings on educational matters (.59); # 28, preparing articles, speeches, reports on educational topics (.59); # 18, studying educational issues to determine needs, problems, policy alternatives (.51); and # 27, analyzing the effects of or making recommendations regarding educational legislation (.50).

Factor III. Legislative Analysis and Program Evaluation. This very weak factor, accounting for less than ten percent of the extracted covariation, primarily accounts for some of the residual covariation between # 27, analyzing the effects of or making recommendations regarding educational legislation (.47), and # 26, evaluating the worth or merit of educational programs (.40). Note also the loadings of: # 18, study educational issues (.28), and # 29, responding to constituents' requests for information (-.26).*

To summarize, factor analysis of 13 activities resulted in three factors, accounting for 55 percent of the covariation. They are:

Factor I	Policy, Budgets, Agenda, and Problems
Factor II	Communication and Analysis of Educational Issues
Factor III	Legislative Analysis and Program Evaluation.

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* Given the pattern of significant differences in ratings of importance for the individual activity items, it is predictable that the averages of factor scores for Factor II would be significantly higher for state than for local board members. However, the factor scores for Factor I (and possibly Factor III) would be significantly higher for local school board members. Hence, part of the pattern found in this factor analysis may be attributable to combining these two nominally similar, but apparently quite different populations in one analysis.

12. LEGISLATORS AND AIDES

Table III.16 presents the response data for state legislators and federal legislative aides. Although of possibly some value, the reader is warned to note that these samples are extremely small and possibly also biased.*

Table III.16 is presented primarily for the record. The four statistically significant differences indicated therein will probably be confirmable if larger samples are taken and better response rates are achieved. Moreover, it seems likely that additional differences would be established (e.g., on importance of work activities (A), (E), (J), and possibly (K), and on several of the special effort differences). Generally, it appears that federal aides, perhaps because of their role as staff assistants, may be more prone than elected state legislators to make special efforts to find information on educational items.

Federal Legislative Aides. Despite the small sample size (N = 10), it may be useful to note that the particularly "high" importance activities for federal legislative aides are: (D), analyzing legislation for intent and impact on various groups (.9); (A), researching educational issues (.8); (H), making recommendations regarding legislation (.8); (I), drafting or revising legislation (.7); and (K), responding to legislators' and other staff members' requests for information (.7). No more than three of the ten aides marked any of the listed activities of "low" importance.

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* Questionnaires were mailed to 120 legislators in educational committees in 20 states. Only 28 usable returns were received by the survey cut-off date, yielding a response rate of 23 percent. Questionnaires were mailed to 41 U.S. Congressional aides selected by NIE staff as the population of aides most directly concerned with educational legislation in the U.S. Congress. Only 10 usable returns were received for a response rate of 24 percent. It seems reasonable to assume that the one quarter of each sample who provided usable returns consists of persons who are more concerned with educational information needs than those who did not provide usable returns. Perhaps these data can provide a very rough picture of the work activities and information efforts of legislators and aides, but it seems clear that further study of these groups, with more intensive survey follow-up and probably personal interviewing, will be required before one can place even moderate confidence in our knowledge of these groups. We note that four U.S. Congressional aides and nine state legislators and aides were field-interviewed during the first phase of this market study, but this does not appreciably reduce our uncertainty about these two subaudiences.

TABLE III.16 QUESTION I. ABOUT YOURSELF AND YOUR WORK (LEGISLATORS)

4. Needs for information are affected by the nature of the work one does. To help us identify the general nature of your work, please consider each of the following types of activities. Decide how significant a part of your work it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor which you think is relevant.

5. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

		FED. LEGIS. AIDES N ≥ 10			STATE LEGIS. AIDES N ≥ 27			Chi Square	Special Effort to Find Information during year		Chi Square	Corr. Impor vs. Need
Nr.	QUESTIONNAIRE ITEM	High	Mod.	Low	High	Mod.	Low	P-Level			P-Level	
	Work Activity in Education	%	%	%	%	%	%		%	%		r
(A)	Researching educational issues to determine needs, problems, policy alternatives	80.0	20.0	0.0	48.1	33.3	18.5	NS	80.0	32.1	*	.42
(B)	Holding public hearings on educational matters	50.0	20.0	30.0	42.9	35.7	21.4	NS	30.0	25.0	NS	.51
(C)	Conferring with special interest groups or lobbyists on educational matters	50.0	30.0	20.0	50.0	42.9	7.1	NS	40.0	46.4	NS	.41
(D)	Analyzing educational legislation (current, pending or proposed) for intent, impact, effect on various groups	90.0	10.0	0.0	82.1	17.9	0.0	NS	90.0	60.7	NS	.17
(E)	Analyzing educational legislation for costs or other fiscal or legal implications	50.0	50.0	0.0	71.4	28.6	0.0	NS	70.0	46.4	NS	.20
(F)	Reviewing educational budgets or financial plans	10.0	90.0	0.0	57.1	32.1	10.7	**	30.0	32.1	NS	.23
(G)	Evaluating the worth or merit of alternative educational programs	40.0	40.0	20.0	42.9	35.7	21.4	NS	50.0	42.9	NS	.58
(H)	Making recommendations regarding educational legislation	80.0	0.0	20.0	81.5	14.8	3.7	NS	80.0	46.4	NS	.42
(I)	Drafting or revising educational legislation	70.0	30.0	0.0	64.3	32.1	3.6	NS	90.0	57.1	NS	.12
(J)	Preparing articles, speeches, reports on educational topics	50.0	40.0	10.0	21.4	39.3	39.3	NS	70.0	28.6	*	.58
(K)	Responding to legislators or other staff members requests for information on educational topics	70.0	20.0	10.0	51.9	37.0	11.1	NS	60.0	39.3	NS	.41
(L)	Responding to constituents requests for information on educational topics	60.0	40.0	0.0	46.4	35.7	17.9	NS	70.0	17.9	**	.28
(M)	Handling special problems or assignments relating to education	60.0	40.0	0.0	51.9	40.7	7.4	NS	60.0	21.4	NS	.49

State Legislators. Top concerns of state legislators are: (D), analyzing legislation for impact on various groups (82%); (H), making recommendations regarding legislation (82%); (E), analyzing legislation for costs or legal implications (71%); (I), drafting or revising legislation (64%); and (F), reviewing educational budgets or financial plans (57%). There are no activities rated "low" by more than 40 percent of the state legislators.

Correlations Between Importance of Work Activity and Effort to Find Information. The correlations between activity importance and effort to find information have very wide confidence limits, but at least half are probably significantly greater than zero correlation.* The possibly strongest relationships between importance of the activity and effort to find information are for: program evaluation; preparing articles, speeches, or reports; holding public hearings; and handling special problems or assignments.**

13. PATTERNS OF LEGISLATIVE WORK ACTIVITIES

Table III.17 presents the data for means, standard deviations, Ns, correlations, and factor loadings for the legislative sample. The means deserve brief comment, since given the absence of significant differences between the two groups and the small sample sizes, there is some justification for pooling the data. Note that the means range between 1.16 (virtually everyone rating analysis of legislation for intent and effect on various groups as of "high" importance) and 2.03 (for preparation of articles, speeches, reports). This constitutes the narrowest range of means found for any of the six groups of audiences.

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* The SRS formula indicates that a correlation of .33 is required at the .05 level of significance. However, there are minor complications, including the correction for coarse grouping, of cluster-sampling of state legislators, and the (.13) finite sampling correction for federal aides. Perhaps a .40 correlation would be a better estimate of the requirement for significance at the .05 level. Note that even if the coarse grouping correction (1.43) is applied, correlation for item (L), responding to constituents' requests, would reach the .40 value. Hence, perhaps 9 of the 13 correlations are significantly different from zero.

**If the coarse grouping correction is applied, all of these correlations would be .7 or higher.

TABLE III.17 QUESTION I.4 ABOUT YOURSELF AND YOUR WORK (LEGISLATORS)

Means, Standard Deviations, Correlations, and Rotated Factor Loadings for Importance Ratings of 13 Legislator Work Activities.
(Decimals Omitted for Correlations and Factor Loadings.)

FORM L Work Activity in Education	Mean	Standard Deviation	N	Variable	CORRELATIONS 18	19	20	21	22	23	24	25	26	27	28	29	30	Variable	Factor I	Factor II	Factor III	Factor IV	Factor V
Researching educational issues to determine needs, problems, policy alternatives	1.57	.73	37	18	-	14	17	06	13	18	20	26	28	15	41	13	10	18	38	39	21	14	02
Holding public hearings on educational matters	1.79	.81	38	19	14	-	34	11	-02	-10	14	22	24	05	-01	33	09	19	00	20	07	43	03
Conferring with special interest groups or lobbyists on educational matters	1.60	.68	38	20	17	34	-	15	01	03	-06	40	33	02	-08	47	-19	20	-14	33	-05	63	12
Analyzing educational legislation (current, pending, or proposed) for intent, impact, effect on various groups	1.16	.37	38	21	06	11	15	-	45	26	12	05	24	08	-03	02	-08	21	-07	06	14	13	61
Analyzing educational legislation for costs or other fiscal or legal implications	1.34	.48	38	22	13	02	01	45	-	25	05	-05	33	-02	25	-17	18	22	23	10	03	-13	77
Reviewing educational budgets or financial plans	1.63	.63	38	23	18	-10	03	26	25	-	55	-02	09	07	13	-13	12	23	14	07	54	-10	27
Evaluating the worth or merit of alternative educational programs	1.79	.78	38	24	20	14	-06	12	05	55	-	01	-00	27	-06	00	-02	24	-02	05	96	03	00
Making recommendations regarding educational legislation	1.27	.61	37	25	26	22	40	05	-05	-02	01	-	60	-13	-17	05	-17	25	-16	77	-05	21	-06
Drafting or revising educational legislation	1.37	.54	38	26	28	24	33	24	33	09	-00	60	-	-02	-04	-13	-06	26	-04	78	-05	06	34
Preparing articles, speeches, reports on educational topics	2.03	.79	38	27	15	05	02	08	02	07	27	-13	-02	-	-08	-03	06	27	-02	-04	28	03	01
Responding to legislators' or other staff members' requests for information on educational topics	1.54	.69	37	28	41	-01	-08	-03	25	13	-06	-17	-04	-08	-	28	50	28	99	-02	-05	06	05
Responding to constituents' requests for information on educational topics	1.63	.71	38	29	13	33	47	02	-17	-13	00	05	-13	-03	28	-	14	29	23	-15	-03	88	-12
Handling special problems or assignments relating to education	1.51	.61	37	30	10	09	-19	-08	18	12	-02	-17	-06	06	50	14	-	30	51	-11	02	-01	05

Due to the very small sample size, the correlations are probably not very stable and the factor analysis results are highly unreliable; therefore, no effort will be made to describe the analysis beyond the following comments: Five factors extracted 69 percent of the covariance. Each factor identifies a major pair (or triad) of moderately corrected activities: Pair I - # 28, responding to legislators' and other staff members' requests for information, and # 30, handling special problems or assignments (r = .50, if corrected for coarse grouping (x 1.36) = .68); Pair II = # 25, making recommendations regarding legislation, and # 26, drafting or revising legislation (r = .60, corrected .82); Pair III - # 23, reviewing budgets or financial plans, and # 24, evaluating the worth or merit of alternative programs (r = .55, corrected .75); Triad IV - # 29, responding to constituents' requests, and # 20, conferring with special interest groups or lobbyists (r = .47, corrected .64); # 19, holding public hearings, is also correlated with these last two items; the respective correlations are: # 29 and # 19 (r = .33, corrected .45); # 20 and # 19 (r = .34, corrected .46); Pair V - # 21, analyzing legislation for intent, impact, effort, and # 22, analyzing legislation for costs or other fiscal or legal implications (r = .45, corrected .61). Item # 27, preparing articles, speeches, and reports, has no correlation above .27 with any of the items. Item # 18, researching educational issues, is also largely independent; its strongest correlation is .41 (.56 corrected) with # 28, responding to legislators' or other staff members' requests for information on educational topics.

To summarize, the correlations among the 13 activities are not particularly strong, and the estimates are not particularly reliable. Factor and correlational analyses suggest that perhaps six or seven fairly independent types of legislative activities may be involved; although some items may be paired, each of the listed items may be required to account for the variety of legislative activities found in this small sample of educational legislators and aides.

CHAPTER IV

QUESTION II. ABOUT THE INFORMATION SOURCES YOU USE IN YOUR MOST IMPORTANT WORK ACTIVITIES

A. OVERVIEW

This chapter is concerned primarily with three kinds of information: (1) the identification of the single, most important work activity of users, (2) the information sources users turn to to find information regarding this most important activity, and (3) the time delay users can allow for receipt of information regarding their most important work activity.

II. ABOUT THE INFORMATION SOURCES YOU USE IN YOUR MOST IMPORTANT WORK ACTIVITIES

1. (a) Most important work activity
   (b) Frequency of use of 18 sources in connection with most important work activity
   (c) Next most important work activity
   (d) Frequency of use of 18 sources in connection with next most important work activity
2. How much time can you usually allow to elapse after realizing the need for information (in connection with your two most important work activities).

Since responses regarding use of information sources discussed in this chapter are associated with specific, "most important" work activities, the first section presents the work activity results based on the six different lists of activities. The next section presents the averages for frequency ratings (often, sometimes, rarely) respondents gave for each source listed. Significance tests indicate that the distribution of responses across the 14 subaudiences is significantly different for each and every one of 18 information sources. The general character of these differences is identified and discussed.

The 14 audiences also display highly significant differences in their ability to wait for information they need in their most important activities. These differences are also examined.

B. MOST IMPORTANT WORK ACTIVITY

Question II.1 focused on the information sources users tend to turn to. The first part of this question was posed in this fashion:

> "Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated [for degree of importance] on the opposite page and write in the spaces provided below the letters of the two activities which you consider to be the two most important activities in your work."

The two spaces were labelled "My most important work activity is..." and "My next most important activity is..."

The following presents the responses for only the most important work activity; items are ordered by overall frequency of mention.

1. PRACTITIONERS

Teachers. Among the three practitioner subaudiences, it is not surprizing that 81 percent of the teachers identified teaching or counseling students as their most important work activity. Another six percent indicated that it is preparing lessons. Ten other activities are mentioned by one or a few teachers, but none by more than three percent of the sample.

Principals. This group displays a far more diverse set of responses than either teachers or "other" staff, the more frequent ones including: determining educational needs (20%), curriculum planning (16%), handling disciplinary problems (16%), and teaching or counseling students (13%). Another six activities (for a total of ten activities) are identified by at least three percent of the sample.

"Other" Staff. Like the teachers, teaching or counseling students is usually the most important activity (60%) of "other" staff; however, members of this sample also mention selecting instructional materials (8%), determining educational needs (7%), consulting or advising others (6%), and curriculum planning (5%).

Table IV.1 Question II.1 Most Important Work Activities of School Practitioners

Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated on the opposite page and write in the letter of the work activity which you consider to be the most important in your work.

		PRACTITIONERS		
NR.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER
		%	%	%
	Work Activity in Education			
(A)	Teaching or counseling students	80.7	13.4	60.1
(H)	Determining educational needs	1.5	19.6	6.9
(E)	Curriculum planning	1.0	15.6	4.9
(B)	Handling disciplinary or other student problems	1.5	15.6	2.5
(T)	Consulting or advising others on educational matters	0.0	6.1	5.9
(F)	Selecting instructional materials	1.5	0.0	8.4
(D)	Preparing lessons	5.9	0.6	1.0
(I)	Establishing educational objectives	0.5	5.0	1.5
(G)	Looking for new methods	3.0	3.4	0.5
(K)	Acquiring new knowledge or skills	2.5	1.1	2.5
(S)	Developing educational materials	0.5	2.8	2.5
(J)	Evaluating program outcomes	0.0	4.5	0.5
(N)	Performing other administrative functions	0.0	3.9	0.0
(L)	Scheduling (space, students, staff)	0.0	3.4	0.0
(O)	Working with parents or community	0.0	2.2	0.0
(C)	Sponsoring or supervising extracurricular activities	0.5	1.1	0.5
(R)	Providing pre- or inservice teacher training	1.0	0.0	0.5
(M)	Preparing school budgets or financial plans	0.0	0.0	0.5
(Q)	Conducting studies or investigations	0.0	0.0	0.5
(P)	Working with school boards	0.0	0.0	0.0
(U)	Other	0.0	0.6	0.5
	N ≥	202	179	203

We thus see that teaching or counseling students is clearly the modal response for both teachers and "other" staff, and that the principals' most important work activity is less predictable, but will usually be concerned with determining educational needs, curriculum planning, handling student problems, or teaching or counseling students.

2. ELEMENTARY AND SECONDARY EDUCATION ADMINISTRATORS

Local educational agency (LEA), intermediate service agency (ISA), and state educational agency (SEA) staffs exhibit a wide variety of "most important" work activities. Because of the many differences, it may be useful to first examine some of these differences before concentrating on the activities of each subaudience. Determining educational needs is most frequently mentioned by LEA staff (16%) and ISA staff (18%), and is second, after consulting or advising other educators, for SEA staff (10%). Curriculum planning and development is relatively frequently mentioned by ISA staff (13%) and LEA staff (10%), but slightly less by SEA staff (5%). Financial planning is particularly a top concern of LEA staff (16%), less so for SEA staff (7%), and least for ISA staff (2%). (The differences among the three audiences on this item are statistically significant.) Developing educational programs is about equally mentioned among all three staffs (5% to 10%). Inservice training is an area of marked differences, with substantially (and statistically) higher proportions of ISA staff mentioning this item (15%) than either SEA staff (5%) or LEA staff (2%). Consulting is another item which displays marked differences ranging from 14 percent for SEA staff to one percent for LEA staff. Providing pupil personnel services exhibits exactly the reverse order, ranging from 11 percent in LEAs to one percent in SEAs. It appears that larger proportions of SEA staff are most concerned about liaison functions (8%), evaluating educational programs (7%), or conducting studies or investigations (9%), but possibly only the last difference is statistically significant.

LEA Staff. The most frequently identified activities are: determining educational needs (16%), financial plans, etc. (16%), providing pupil personnel services (11%), developing educational programs and materials (6%), appraising teacher or administrator effectiveness (6%), and planning or maintaining support services (5%). At

Table IV.2 Question II.1 MOST IMPORTANT WORK ACTIVITY OF LEA, ISA, SEA ADMINISTRATORS

Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated on the opposite page and write in the letter of the work activity which you consider to be the most important in your work.

		ADMINISTRATORS		
NR.	QUESTIONNAIRE ITEM	LEA	ISA	SEA
		%	%	%
(A)	Determining educational needs	16.5	18.0	9.9
(D)	Curriculum planning and development	9.6	13.1	4.5
(J)	Financial plans, budgets, or other financial matters	15.7	1.6	7.2
(E)	Developing educational programs and materials	6.1	9.8	5.4
(G)	Providing pre- or inservice training	1.7	14.8	4.5
(P)	Consulting or advising other educators on educational matters	0.9	6.6	13.5
(H)	Providing pupil personnel services (records, guidance, counseling, etc.)	11.3	6.6	0.9
(N)	Performing administrative liaison functions	2.6	4.9	8.1
(B)	Establishing educational goals and objectives	6.1	1.6	7.2
(C)	Evaluating educational programs	2.6	3.3	7.2
(M)	Planning or maintaining support services (e.g., transportation, food, library)	5.2	3.3	4.5
(K)	Dealing with legal problems or educational legislation	3.5	3.3	4.5
(Q)	Conducting studies and investigations	0.9	0.0	9.0
(F)	Appraising teacher or administrator effectiveness	6.1	3.3	0.0
(L)	Planning acquisition or maintenance of facilities and equipment	4.3	1.6	0.9
(I)	Developing or negotiating teacher or administrator salaries or other personnel matters	1.7	0.0	2.7
(O)	Working with, informing, securing support of community leaders, legislators, others	0.9	1.6	1.8
(R)	Other	4.3	6.6	8.1
	N≥	115	61	111

least ten different activities are mentioned by three percent or more of the sample. (This is the same number identified by school principals.)

ISA Staff. Activities mentioned most frequently as the most important by ISA respondents include: determining educational needs (18%), providing pre- or inservice training (15%), curriculum planning and development (13%), developing educational programs or materials (10%), consulting or advising other educators (7%), providing pupil personnel services (7%), and performing administrative services (5%). Eleven activities are mentioned by three percent or more of the ISA staff as their most important activity.

SEA Staff. The most frequently mentioned activities for this group are: consulting or advising other educators (14%), determining educational needs (10%), conducting studies or investigations (9%), performing liaison functions (8%), financial plans, budgets...(7%), establishing educational goals and objectives (7%), evaluating educational programs (7%), and developing educational programs and materials (5%). Twelve work activities are identified as most important by three percent or more of the SEA staff.

Anticipating the results to be presented for the following audiences, it is apparent that the elementary and secondary administrators (including school principals) are the most diverse subaudiences in their identification of most important work activities. None of the other groups begin to identify as proportionally large a number of different activities as the most important in their work.

3. HIGHER EDUCATION ADMINISTRATORS

There are perhaps four or five statistically significant differences between the chief administrators and the institutional researchers. In three cases there are significantly more chief administrators than institutional researchers who identify these activities as most important: program planning and development (42% versus 9%); establishing institutional goals and objectives (14% versus 2%); and developing personnel policies, negotiating salaries, or other personnel matters (8% versus 0%). Conversely, 20 percent of the institutional researchers identify

Table IV.3 Question II.1 MOST IMPORTANT WORK ACTIVITY OF HIGHER EDUCATION CHIEF ADMINISTRATORS AND INSTITUTIONAL RESEARCHERS

Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated on the opposite page and write in the letter of the work activity which you consider to be the most important in your work.

		HIGHER EDUCATION ADMINISTR.	
NR.	QUESTIONNAIRE ITEM	CHIEF	IN.R.
		%	%
(B)	Program planning and development (academic, research, service)	42.4	9.1
(G)	Planning or managing allocation and utilization of resources	10.6	10.9
(K)	Making enrollment projections, describing student body characteristics	1.5	20.0
(A)	Establishing institutional goals and objectives	13.6	1.8
(E)	Developing budgets or financial plans	4.5	9.1
(N)	Working with, informing, securing support of institutional administrators and staff	3.0	10.9
(M)	Long-range institutional planning	6.1	7.3
(L)	Conducting studies or surveys of current status of institutional programs or activities	0.0	9.1
(C)	Reviewing or evaluating programs	4.5	3.6
(D)	Developing personnel policies, negotiating salaries, or other personnel matters	7.6	0.0
(F)	Securing and establishing sources of funding	1.5	1.8
(H)	Planning or managing facilities and equipment	0.0	1.8
(I)	Planning or managing support services (e.g., housing transportation, library)	0.0	1.8
(J)	Developing and administering admissions and student personnel policies, including recruitment, testing, records, counseling, placement, etc.	0.0	1.8
(O)	Working with, informing, securing support of alumni, community leaders, legislators, others	1.5	0.0
(P)	Consulting or advising other educators on educational matters	1.5	0.0
(Q)	Other	1.5	10.9
	N≥	66	55

making enrollment projections or describing student body characteristics as their most important activity while only one chief administrator (1.5%) does; nine percent of the researchers, but none of the chiefs are most concerned about conducting studies or surveys.

Chief Administrators. The most frequently mentioned "most important" activities are: program planning and development (42%), establishing institutional goals and objectives (14%), planning or managing allocation and utilization of resources (11%), developing personnel policies, negotiating salaries, or other personnel matters (8%), and long-range institutional planning (6%). Eight activities are identified by at least three percent of the higher education chief administrators (a number slightly lower than for the diverse variety of positions represented in the elementary and secondary education staff samples).

Institutional Researchers. The most frequently mentioned activities are: making enrollment projections or describing student body characteristics (20%); planning or managing allocation and utilization of resources (11%); working with, informing, securing support of institutional administrators and staff (11%); program planning and development (9%); developing budgets or financial plans (9%); conducting studies or surveys of current status of institutional programs (9%); and long-range institutional planning (7%). Eight activities are identified by three percent or more of this subaudience.

4. EDUCATIONAL FACULTY AND SOCIAL SCIENTISTS

There are only two statistically significant and quite predictable differences between these subaudiences. Seventy four percent of the educational faculty versus 49 percent of the social scientists identify teaching or counseling students as their most important activity, while just 12 percent of the social scientists, but none of the educational faculty identify conducting research studies as their most important activity.

Table IV.4 Question II.1 MOST IMPORTANT WORK ACTIVITY OF EDUCATIONAL FACULTY AND SOCIAL SCIENTISTS

Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated on the opposite page and write in the letter of the work activity which you consider to be the most important in your work.

		HIGHER EDUCATION FACULTY	
NR.	QUESTIONNAIRE ITEM	SO.SC.	ED.F.
		%	%
(A)	Teaching or counseling students	49.3	74.2
(B)	Preparing courses, lectures, etc.	9.0	8.1
(E)	Developing educational materials or programs	9.0	6.5
(C)	Conducting research studies	11.9	0.0
(G)	Consulting, advising, or providing technical assistance	7.5	1.6
(D)	Conducting evaluation studies	6.0	0.0
(I)	Managing or administering academic programs	0.0	4.8
(H)	Managing R&D programs or projects	1.5	1.6
(F)	Preparing reports, articles, or speeches	1.5	0.0
(K)	Preparing proposals for funded projects	1.5	0.0
(J)	Working on academic committees, councils, etc.	0.0	0.0
(L)	Working with local schools or communities regarding educational problems or projects	0.0	0.0
(M)	Other	3.0	3.2
	N≥	67	62

Social Scientists. Perhaps the most remarkable thing about this group is that fewer than 40 percent identify all combined aspects of RDD&E activities as their most important activity (12% research, 9% developing materials or programs, 6% conducting evaluation studies, 8% consulting, advising, or providing technical assistance, and 1.5% each managing R&D projects or preparing reports, articles, or speeches), while 58 percent of this group identify teaching or counseling students (49%) or preparing courses, lectures, etc. (9%) as their most important work activity. These results confirm the earlier data regarding work activity importance ratings; teaching is the primary activity of the great majority of educational social scientists in academic institutions. RDD&E, even when broadly defined, is a set of activities of less importance for the majority of academic social scientists.* Six specific activities are mentioned by three percent or more of this group.

Educational Faculty. Only four activities are mentioned by this proportion of the educational faculty: teaching or counseling students (74%), preparing courses, lectures, etc. (8%), developing educational materials (6%), and managing or administering academic programs (5%). Educational faculty exhibit slightly more diversity than elementary and secondary teachers (and social scientists are roughly comparable to "other" school practitioners).

5. SCHOOL BOARD MEMBERS

There are perhaps three marginally significant differences when one takes into account the fact that both of these groups were cluster-sampled. The majority

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* Recall that this sample was selected from AERA members whose biographic records indicated that they were employed by colleges or universities (not as students), and that their primary or secondary work was in R,D,D, or E or management of R,D,D, or E. If the sampling frame had been constituted on the basis of primary RDD&E and its management, higher proportions would have been found. It should also be noted that social scientists indicated the following as their next most important activities: conduct research studies (27%), prepare courses, lectures, etc. (19%), teaching or counseling students (12%), developing educational materials or programs (10%), conducting evaluation studies (8%), and (at 4.5% each) preparing reports, articles, or speeches; consulting, advising, or providing technical assistance; managing R&D programs or projects; and preparing proposals. Thus R,D,D, or E-related activities do assume a larger proportion among those activities identified as the next most important in their work.

Table IV.5 Question II.1 MOST IMPORTANT WORK ACTIVITY OF SCHOOL BOARD MEMBERS

Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated on the opposite page and write in the letter of the work activity which you consider to be the most important in your work.

		GOVERNANCE	
NR.	QUESTIONNAIRE ITEM	L.BD.	S.BD.
		%	%
(A)	Studying educational issues to determine needs, problems, policy alternatives	31.9	55.2
(D)	Studying specific board agenda items for intent, impact, fiscal, or legal implications	9.9	13.8
(F)	Establishing policy for management of ongoing functions of school systems	15.4	0.0
(H)	Reviewing educational budgets or financial plans	14.3	0.0
(B)	Holding public hearings on educational matters	3.3	6.9
(I)	Evaluating the worth or merit of educational programs	6.6	3.4
(K)	Preparing articles, speeches, reports on educational topics	0.0	6.9
(E)	Establishing personnel policy or reviewing decisions to hire, transfer, or terminate	3.3	3.4
(J)	Analyzing the effect of or making recommendations regarding educational legislation	2.2	3.4
(G)	Monitoring and advising on operation of school systems	3.3	0.0
(C)	Conferring with special interest or citizen's groups on educational matters	2.2	0.0
(L)	Responding to constituents' requests for information on educational topics	2.2	0.0
(M)	Handling special problems or board assignments relating to education	1.0	0.0
(N)	Other	4.4	6.8
	N≥	91	29

of state board members (55%) identify studying educational issues to determine needs, problems, and policy alternatives as their most important activity while approximately one third (32%) of local board members identify this as their most important activity. Part of this difference is accounted for by the fact that small, but perhaps significant proportions (15% - 14%) of local board members, but no state board members identify establishing policy for school system management and reviewing budgets or financial plans as their most important activities.

Local Boards. The most important activities of this group are: studying educational issues (32%), establishing policy for school system management (15%), reviewing educational budgets or financial plans (14%), studying specific board agenda items (10%), and evaluating educational programs (7%). Eight items are mentioned by three percent or more of this sample.

State Boards. The most important activities mentioned by state school board members are: studying educational issues (55%), studying specific board agenda items (14%), holding public hearings (7%), and preparing articles, speeches, reports on educational issues (7%). Seven activities are identified as most important by three percent or more of this sample.

6. LEGISLATORS

The number of usable responses for these two groups is too small to establish any reliable differences; however, it is apparent that only 3 of the 13 activities are identified as being the most important for legislators and aides: analyzing educational legislation for intent and effect on various groups; researching educational issues to determine needs, problems, policy alternatives; and analyzing educational legislation for costs or other fiscal or legal implications.

Table IV.6 Question II.1 MOST IMPORTANT WORK ACTIVITY OF LEGISLATORS AND AIDES

Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated on the opposite page and write in the letter of the work activity which you consider to be the most important in your work.

		GOVERNANCE	
NR.	QUESTIONNAIRE ITEM	S.LEG.	F.LEG.
		%	%
(D)	Analyzing educational legislation (current, pending, or proposed) for intent, impact, effect on various groups	35.7	50.0
(A)	Researching educational issues to determine needs, problems, policy alternatives	28.6	50.0
(E)	Analyzing educational legislation for costs or other fiscal or legal implications	28.6	0.0
(C)	Conferring with special interest groups or lobbyists on educational matters	7.1	0.0
(B)	Holding public hearings on educational matters	0.0	0.0
(F)	Reviewing educational budgets or financial plans	0.0	0.0
(G)	Evaluating the worth or merit of alternative educational legislation	0.0	0.0
(H)	Making recommendations regarding educational legislation	0.0	0.0
(I)	Drafting or revising educational legislation	0.0	0.0
(J)	Preparing articles, speeches, reports on educational topics	0.0	0.0
(K)	Responding to legislators' or other staff members' requests for information on educational topics	0.0	0.0
(L)	Responding to constituents' requests for information on educational topics	0.0	0.0
(M)	Handling special problems or assignments relating to education	0.0	0.0
(N)	Other	0.0	0.0
	N≥	14	2

C. FREQUENCY OF USE OF 18 INFORMATION SOURCES IN CONNECTION WITH MOST IMPORTANT WORK ACTIVITY

In the previous section, the characters of the most important work activities of each subaudience were presented. To recap briefly, the majority of teachers, "other" school staff, educational faculty, and social scientists indicated that their most important activity was concerned with teaching and counseling students (and preparing lessons, lectures, etc.). Administrators (including school principals and higher education chief administrators) display remarkably more diversity. Determining needs, program planning, financial planning, resource allocation, and pupil personnel services are some of the more frequently mentioned activities. School board members are primarily concerned with studying educational issues to determine needs, problems, policy alternatives, and with studying specific board agenda items for intent, impact, fiscal, or legal implications. Some local board members are also concerned with budgets and with school systems management policy. The vast majority of state legislators and congressional aides are concerned with one of three activities: analyzing legislation for intent, impact, effect; researching educational issues to determine needs, problems, policy alternatives; and analyzing educational legislation for cost or other fiscal or legal implications. These are the major activities which the 14 subaudiences identified in connection with their ratings of the 18 information sources displayed in the adjacent table.

Note that the figures reported in the following tables represent averages based on a three-point frequency of use rating scale (1 = Often, 2 = Sometimes, 3 = Rarely).

1. OVERALL FREQUENCY OF USE OF INFORMATION SOURCES

Before examining differences between subaudiences or the patterns for specific subaudiences, it may be useful to concentrate on the overall averages listed in the first table and repeated in the right hand part of the second table under the label "EQUAL WT. AVG. TOTAL." These are the 14 subaudience averages for each item, with each subaudience given equal weight.* They tend to reflect the "overall"

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* "Simple averages" sometimes used elsewhere are averages over the total number of respondents; in these cases the responses of the high proportion of practitioners tend to dominate.

Table IV.7 Frequency of Use of 18 Information Sources Based on Unweighted Averages of 14 Subaudiences

(1 = Often, 2 = Sometimes, 3 = Rarely)

Nr.	Item	Average	Rank
(12)	Face-to-face discussion or conferences with people in my own organization	1.35	1
(15)	Notes and files in my own office	1.46	2
(6)	Educational newsletters, bulletins, announcements	1.72	3
(8)	Telephone calls to people in my own organization	1.76	4
(7)	Educational journals	1.80	5
(13)	Personal library	1.85	6
(3)	Memos and correspondence	1.87	7
(17)	Face-to-face discussion or conferences with people in other organizations	1.88	8
(2)	Telephone calls to people in other organizations	1.92	9
(5)	Library or resource center in my own organization	1.95	10
(16)	Office, department, or organization files	2.00	11
(14)	Conventions, professional association meetings	2.01	12
(1)	Workshops, seminars, graduate courses	2.06	13
(18)	Textbooks, reference books	2.08	14
(11)	Curriculum materials	2.18	15
(9)	Technical reports, government publications	2.22	16
(10)	Other libraries, resource centers, or information services	2.33	17
(4)	Abstracts, indexes, bibliographies	2.40	18

frequency of use if we treat the data for each subaudience as equally important, without regard to the numbers of persons in each sample or each population.

There are just two sources with distinctly low equal weight, overall averages: face-to-face discussions with people in my own organization (1.35) and notes and files in my own office (1.46). The other sources are closer to the "Sometimes" rating of 2.0, but range from 1.72 for educational newsletters, bulletins, and announcements, to 2.40 for abstract, indexes, and bibliographies.

Generally, the local, easily accessible sources (people in own organization, notes and files in own office, personal library, journals, newsletters, memos, and correspondence) are the more frequently used sources. Contacts (face-to-face or by telephone) with people in other organizations follow; they are mid-way down the list of types of sources. Next come the more formal local information sources (library or resource center in own organization; office, department, or organization files). Conventions, professional association meetings; and workshops, seminars, and graduate courses are an adjacent pair of similar kinds of sources, which are less frequently used. Textbooks, reference books; and curriculum materials are two types of instructional sources which (as we shall see in the following table) are frequently used by those subaudiences most concerned with instruction, but are used far less frequently by other subaudiences. The last three sources (technical reports and government publications; other libraries, resource centers, or information services; and abstracts, indexes, and bibliographies) are used relatively less frequently by most user groups.

2. DIFFERENCES AMONG THE SUBAUDIENCES IN FREQUENCY OF USE OF SOURCES

Turning to the second table in this section, we find displayed the item averages for each of the 14 subaudiences together with the overall (equal weight) item average and the chi square test P-levels for each item.*

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* As noted previously, an analysis of variance would be the appropriate test for differences among means; but even this test would need to take into account the differences in sampling methods. The chi square P-levels assume all subaudiences were simple random-sampled and are thus too liberal; however, the differences among subaudiences are so large, virtually all would prove significant if more exact tests were performed.

Since there are significant differences among the 14 subaudiences for all items, each information source will be briefly considered in terms of the subaudiences who tend to use it relatively most and least frequently. Items will be discussed in the same overall frequency of use rank order as the previous table. Since they are listed in numerical order by item number in the larger table, item number and content will be stated first, followed by higher frequency users (low average ratings), then by low frequency users (high average ratings).

12. Face-to-face Discussions or Conferences With People in My Own Organization. Virtually all higher education chief administrators (1.04) marked this as an often used source. Other subaudiences indicating relatively high frequency use include: state board members (1.18), LEA administrators and staff (1.22), and school principals (1.22). Those who tend least to use discussions with persons in their own organization as a source of information include: federal legislative aides (1.70), social scientists (1.62), educational faculty (1.48), and school teachers (1.46).

15. Notes and Files in My Own Office. This is a primary source for federal legislative aides (1.20), and is also important for every higher education subaudience: social scientists (1.26), educational faculty (1.28), institutional researchers (1.35), and chief administrators (1.38). Although relatively heavily used by all subaudiences, this source is least used by: local board members (1.91), state legislators (1.68), and school principals (1.67).

6. Educational Newsletters, Bulletins, Announcements. LEA administrators (1.46), school principals (1.53), and state board members (1.53) use this source most frequently, while the relatively infrequent users are the federal legislative aides (2.10).

8. Telephone Calls to People in My Own Organization. Local calls are used often by: higher education chief administrators (1.24), state education agency staff (1.46), LEA staff (1.53), state school board members (1.53), and federal legislative aides (1.60). Those most frequently involved in instructional activities are the least frequent users: school teachers (2.40), educational faculty (2.20), and social scientists (2.09).

Table IV.8 Question II.1 About the information sources you use in your most important work activities
Please rate the following sources of information in terms of how often you use the source to obtain information in connection [with your most important work activity]. In connection with this activity, I use this source: 1=Often, 2=Sometimes, 3=Rarely

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				EQUAL WT. AVG.	Chi Square p-
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	TOTAL	Level
(1)	Workshops, seminars, graduate courses	1.65	1.78	1.59	1.62	1.71	2.06	2.43	2.38	2.24	1.85	2.13	2.32	2.42	2.70	2.06	***
(2)	Telephone calls to people in other organizations	2.43	2.17	2.04	1.72	1.56	1.64	1.67	1.80	2.35	2.51	2.15	1.69	1.50	1.70	1.92	***
(3)	Memos and correspondence	2.28	1.98	2.07	1.72	1.63	1.55	1.45	1.73	2.19	2.08	2.16	1.82	1.73	1.80	1.87	***
(4)	Abstracts, indexes, bibliographies	2.43	2.59	2.32	2.47	2.39	2.24	2.61	2.33	1.63	1.87	2.75	2.73	2.69	2.70	2.40	***
(5)	Library or resource center in my own organization	1.68	2.14	1.88	2.21	2.00	1.95	2.16	2.07	1.47	1.46	2.42	2.19	2.12	1.60	1.95	***
(6)	Educational newsletters, bulletins, announcements	1.79	1.53	1.80	1.46	1.69	1.68	1.66	1.87	1.87	1.61	1.73	1.53	1.81	2.10	1.72	***
(7)	Educational journals	1.70	1.53	1.66	1.60	1.84	1.88	2.03	2.02	1.47	1.26	1.92	1.69	2.27	2.40	1.80	***
(8)	Telephone calls to people in my own organization	2.40	1.71	1.97	1.53	1.73	1.46	1.24	1.44	2.09	2.20	1.76	1.53	1.92	1.60	1.76	***
(9)	Technical reports, government publications	2.53	2.47	2.49	2.28	2.39	2.00	2.37	1.96	2.21	2.18	2.25	2.23	1.85	1.80	2.22	***
(10)	Other libraries, resource centers or information services	2.06	2.36	2.22	2.26	2.21	2.26	2.66	2.48	2.22	2.19	2.57	2.38	2.31	2.40	2.33	**
(11)	Curriculum materials	1.46	1.77	1.87	1.98	1.95	2.19	2.24	2.60	2.18	1.70	2.21	2.61	2.73	3.00	2.18	***
(12)	Face-to-face discussion or conferences with people in my own organization	1.46	1.22	1.36	1.22	1.37	1.23	1.04	1.27	1.62	1.48	1.41	1.18	1.30	1.70	1.35	***
(13)	Personal library	1.57	1.95	1.64	1.79	1.79	2.03	1.97	1.84	1.24	1.23	2.21	1.94	2.37	2.30	1.85	***
(14)	Conventions, professional association meetings	2.16	1.93	1.96	1.82	1.76	1.98	1.79	2.20	1.87	1.82	2.22	1.88	2.33	2.60	2.01	***
(15)	Notes and files in my own office	1.45	1.67	1.42	1.39	1.42	1.43	1.38	1.35	1.26	1.28	1.91	1.56	1.68	1.20	1.46	***
(16)	Office, department or organization files	2.16	2.08	2.06	1.78	1.92	1.68	1.79	1.44	2.46	2.41	2.26	2.18	1.96	1.89	2.00	***
(17)	Face-to-face discussion or conferences with people in other organizations	2.34	1.99	2.06	1.86	1.66	1.65	1.75	1.98	2.19	2.16	2.05	1.56	1.26	1.80	1.88	***
(18)	Textbooks, reference books	1.31	2.09	1.71	2.04	2.10	2.20	2.56	2.56	1.54	1.38	2.41	2.50	2.46	2.30	2.08	***
(19)	Other sources (please specify)	1.26	1.53	1.52	1.57	1.25	1.50	1.38	1.71	1.50	1.68	1.79	1.67	2.00	1.50	1.56	NS
	N≥	202	179	197	115	61	108	66	54	67	59	88	30	26	9		

7. Educational Journals. Educational journals are most frequently used by: educational faculty (1.26), social scientists (1.47), school principals (1.53), LEA administrators (1.60), and "other" school staff (1.66). Both the legislative subaudiences tend to be the least frequent users of educational journals: federal aides (2.40), state legislators (2.27).

13. Personal Library. Again, those most frequently involved in instructional activities are the most frequent users: educational faculty (1.23), social scientists (1.24), "other" school staff (1.64), and teachers (1.57).

3. Memos and Correspondence. Generally, and not surprisingly, administrators are the more frequent users of this source: higher education chief administrators (1.45), SEA staff (1.55), ISA staff (1.63), LEA staff (1.72). Outstanding (relative) non-users are: teachers (2.28) and local board members (2.16).

17. Face-to-face Discussions or Conferences With People in Other Organizations. State legislators (1.26) and state school board members (1.56) are the prime users of external interpersonal contacts, followed closely by SEA staff (1.65) and ISA staff (1.66). Those heavily engaged in instructional activities are the less frequent users: teachers (2.34), social scientists (2.19), educational faculty (2.16), "other" school staff (2.06).

2. Telephone Calls to People in Other Organizations. This is a frequently used source of legislative and administrative audiences, but it is less used by instructional audiences. Relatively frequent callers to people in other organizations are: state legislators (1.50), ISA staff (1.56), SEA staff (1.64), higher education chief administrators (1.67), federal legislative aides (1.70), and LEA staff (1.72). Least frequent callers are: educational faculty (2.51), school teachers (2.43), and social scientists (2.35).

5. Library or Resource Center in My Own Organization. If "instructional" subaudiences tend to use interpersonal sources (face-to-face discussions, telephone calls) less frequently, they tend to be the more frequent users of local libraries: educational faculty (1.46), social scientists (1.47), and teachers (1.68). Note also that federal legislative aides are frequent users (1.60)(of the Library of Congress). School board members and LEA administrators are the least frequent

users of local libraries: local board members (2.42), state board members (2.19), LEA staff (2.21), and school principals (2.14).

16. Office, Department, or Organization Files. The more frequent file users are: institutional researchers (1.44), SEA staff (1.68), LEA staff (1.78), and higher education chief administrators (1.79). The least frequent users are: social scientists (2.46) and educational faculty (2.41).

14. Conventions, Professional Association Meetings. Those who find conventions and professional association meetings of more frequent use in their most important work activity include: ISA staff (1.76), higher education chief administrators (1.79), LEA staff (1.82), educational faculty (1.82), and social scientists (1.87). Those using this source less often include: federal legislative aides (2.60), state legislators (2.33), local board members (2.22), institutional researchers (2.20), and teachers (2.16).

1. Workshops, Seminars, Graduate Courses. Generally, school-oriented audiences are the relatively frequent users of this source: "other" staff (1.59), LEA staff (1.62), teachers (1.65), ISA staff (1.71), and school principals (1.78), followed by educational faculty (1.85). Legislative and higher education administrative audiences are the less frequent users: federal aides (2.70), state legislators (2.42), higher education chief administrators (2.43), and institutional researchers (2.38), followed by state boards (2.32).

18. Textbooks and Reference Books. This source is one that most starkly separates higher education administrators and governance audiences from "instruction-oriented" audiences. Relatively frequent users are: teachers (1.31), educational faculty (1.38), social scientists (1.54), and "other" school staff (1.71). The less frequent users are: higher education chief administrators (2.56), institutional researchers (2.56), state board members (2.50), state legislators (2.46), local board members (2.41), and federal legislative aides (2.30).

11. Curriculum Materials. This source tends to display a similar pattern of use, but it is more clearly oriented toward elementary and secondary education users (and those who might provide curriculum and instruction assistance or training): teachers (1.46), educational faculty (1.70), school principals (1.77), "other"

school staff (1.87), ISA staff (1.95), and LEA staff (1.98). Generally, the governance subaudiences have decidedly much less use for curriculum materials: federal aides (3.00), state legislators (2.73), and state board members (2.61). Institutional researchers (2.60) also have relatively rare use for curriculum materials.

9. Technical Reports, Government Publications. Although infrequently used by most subaudiences, these sources are used more frequently by: federal legislative aides (1.80), state legislators (1.85), and institutional researchers (1.96). Practice-oriented audiences are the least frequent users: teachers (2.53), "other" school staff (2.49), school principals (2.47), ISA staff (2.39), and LEA staff (2.28).

10. Other [Than Own Organization] Libraries, Resource Centers, or Information Services. Among the least frequently used of sources, no subaudience has an average rating as low as 2.0 (use sometimes). The relatively frequent users are: teachers (2.06), educational faculty (2.19), social scientists (2.22), and "other" school staff (2.22). The less frequent users are: higher education chief administrators (2.66), local school board members (2.57), and institutional researchers (2.48).

4. Abstracts, Indexes, Bibliographies. Just two subaudiences have average ratings below 2.0 (use sometimes): social scientists (1.63) and educational faculty (1.87). Those subaudiences tending to use these bibliographic reference sources "rarely" include all governance audiences and school and higher education administrators: local board members (2.75), state board members (2.73), federal aides (2.70), state legislators (2.69), higher education chief administrators (2.61), and school principals (2.40).

In the following short paragraphs we shall review the same data concerning relative frequency of use from the standpoint of each subaudience.

Teachers. This group makes frequent use of: textbooks and reference books (1.31), notes and files in own office (1.45), curriculum materials (1.46), face-to-face discussions with people in own organization (1.46); and, compared to other users, teachers are relatively more frequent users of: personal library (1.57), own organization library (1.68), and other libraries (2.06). Relative to other audiences, teachers are less frequent users of: technical reports and government publications (2.53); telephone calls--own organization (2.40), other organization (2.43); face-to-face discussion with people in other organizations (2.34); and memos and correspondence (2.28).

Principals. Compared to other subaudiences, principals tend to be somewhat more frequent users of: face-to-face discussions with people in own organization (1.22); educational newsletters, bulletins, and announcements (1.53); educational journals (1.53); and curriculum materials (1.77). They are relatively less frequent users of: abstracts, indexes, and bibliographies (2.59); technical reports and government publications (2.47); telephone calls to people in other organizations (2.17); and own organization library (2.14).

"Other" School Staff. Compared to other subaudiences, this group tends to make relatively more frequent use of: workshops, seminars, and graduate courses (1.59); office, department, or organization files (1.78); personal (1.64) and other (2.22) libraries; and curriculum materials (1.87).

LEA Staff. Local school district administrative staff are among the most frequent users of educational newsletters, bulletins, and announcements (1.46). They also tend to be relatively more frequent users of: discussions with people in own organization (1.22); telephone calls to people in own organization (1.53); office, department files (1.78); and memos and correspondence (1.72). Compared to other groups, LEA staff have only one distinctly under-used source: libraries or resource centers in own organization (2.21).

ISA Staff. This group is the relatively frequent user of conventions and professional association meetings (1.76). ISA staff also tend to make relatively greater use of: calls to people in other organizations (1.56); memos and correspondence (1.63); face-to-face discussions with people in other organizations (1.66); and other libraries, resource centers, or information services (2.21). Along with school practitioners, ISA staff are among the relatively less frequent users of technical reports and government publications.

SEA Staff. Use of: memos and correspondence (1.55), office and department files (1.68), telephone calls to people in own organization (1.46) and in other organizations (1.64), face-to-face discussions with people in other organizations (1.65), and use of technical reports and government publications (2.00) are the sources used relatively frequently by this subaudience when compared to other subaudiences. SEA staff display no distinctively low frequency usages compared to other subaudiences (and their lowest usage average rating is 2.26 for use of other libraries, resource centers, or information services).

Higher Education Chief Administrators. This group of administrators depends heavily on face-to-face discussions with their staff and faculty (1.04), and, relative to other subaudiences, is among the most frequent users of: telephone calls to people in own organization (1.24), memos and correspondence (1.45), notes and files in own office (1.38), telephone calls to people in other organizations (1.67), and conventions and professional association meetings (1.79). This group rarely uses: other libraries, resource centers, or information services (2.66); abstracts, indexes, or bibliographies (2.61); or textbooks and reference books (2.56).

Institutional Researchers. Compared to other subaudiences, this group is most prone to use office, department, or organization files (1.44), and it is among the relatively more frequent users of: notes and files in own office (1.35), memos and correspondence (1.73), and technical reports and government publications (1.96). This group is a relatively infrequent user of curriculum materials (2.60); textbooks and reference books (2.56); other libraries (2.48); workshops, seminars, and graduate courses (2.38); conventions and professional association meetings (2.20); and educational journals (2.02).

Social Scientists and Educational Faculty. These two groups are so similar in their contrasts to other groups that both will be described at the same time (average ratings stated first for social scientists, then for educational faculty). These groups, relative to others, are the heavy users of bibliographic information sources: personal library (1.24; 1.23); own organization library (1.47; 1.46); notes and files in own office (1.26; 1.28); educational journals (1.47; 1.26); textbooks and reference books (1.54; 1.38); abstracts, indexes, and bibliographies (1.63; 1.87); and other libraries, resource centers, or information services (2.22; 2.19). These two groups are also among the relatively high users of conventions and professional meetings (1.87; 1.82). Educational faculty are also relatively frequent users of curriculum materials (1.70), but social scientists tend to display average use (2.18) of this source. Relative to other subaudiences, both of these subaudiences are less frequent users of: office, department, or organization files (2.46; 2.41) and face-to-face discussions with persons in other organizations (2.19; 2.16).

Local School Board Members. This group tends to be a relatively infrequent user of virtually all sources. It has no source which is of distinctively higher use than other subaudiences, but it tends to have relatively lower average usage ratings for the following: abstracts, indexes, and bibliographies (2.75); other libraries (2.57); own organization library (2.42); textbooks and reference books (2.41); office, department, or organization files (2.26); personal library (2.21); conventions (2.22), telephone calls to people in other organizations (2.15). Note that the only sources rated below 2.0 (use sometimes) are: educational newsletters, bulletins, announcements (1.73); telephone calls to people in own organization (1.76); notes and files in own office (1.91); and educational journals (1.92).

State School Boards. Relative to other subaudiences, this group comprises more frequent users of: face-to-face discussions with people in own organization (1.18); telephone calls to people in own organization (1.53); face-to-face discussions with people in other organizations (1.56); and educational newsletters, bulletins, and announcements (1.53). Like local board members, state board members are rare users of abstracts and bibliographies (2.73), textbooks and reference books (2.50), own organization library (2.16), and own organization files (2.18).

State Legislators. This group displays the highest average use of face-to-face discussions (1.26) and telephone calls to people in other organizations (1.50). State legislators are also (relatively) more frequent users of technical reports and government publications (1.85). Relative to other groups, state legislators tend to make less frequent use of: other libraries, resource centers, or information services (2.73); abstracts, indexes, bibliographies (2.69); textbooks and reference books (2.46); workshops, seminars, graduate courses (2.42); personal library (2.37); conventions (2.33); educational journals (2.27); and notes and files in own office (1.68).

Federal Legislative Aides. Among the 14 subaudiences, this group appears to be the most frequent user of: notes and files in own office (1.20) and technical reports and government publications (1.80). They are also relatively frequent users of own library or resource center, the Library of Congress (1.60), and of calls to people in own organization (1.60) and other organizations (1.70). This group rarely uses curriculum materials (3.00); abstracts, indexes, bibliographies (2.70); workshops, seminars, graduate courses (2.70); conventions or professional association mettings (2.60); and, relative to other groups, is a less frequent user of: educational journals (2.40) and personal library (2.30).

Summary. Despite the various differences noted above, we can discern somewhat similar patterns of use of information sources among instructors (teachers, educational faculty, social scientists), among school-oriented audiences (teachers, principals, "other" staff, LEA staff, ISA staff, and educational faculty), among administrators (school principals, LEA staff, ISA staff, SEA staff, higher education chief administrators), among higher education faculty (social scientists, educational faculty), and possibly among the governance audiences. Instructional staff tend to be users of libraries, textbooks, and curriculum materials, and relative non-users of interpersonal sources (face-to-face discussions and telephone calls). Administrators, by contrast, make substantial use of all interpersonal sources and are also heavy users of memos, correspondence, own office and organization files. Social scientists and educational faculty are among the most frequent users of all bibliographic sources and references to bibliographic sources (own notes and files; libraries; textbooks and reference books; journals; and abstracts, indexes, and bibliographies). These two groups are among the least frequent users of office, department, or organization files. Among the governance groups there is greatest (but not complete) similarity in sources not used frequently (e.g., abstracts, indexes, bibliographies; curriculum materials; personal library; and conventions and professional meetings).

Please note again, these data identify frequency of use of sources with respect to their one most important work activity. In the following chapter, we shall examine the same list of sources in terms of their rated usefulness for all work activities. But before turning to those data, we need to examine briefly the question of how long these users can wait for the information they need with respect to their (two) most important work activities.*

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* This report omits discussion of frequency of use of sources in connection with "next most important" work activity, because the results tend to mirror those found for "most important" work activity.

D. ALLOWABLE TIME LAPSE FOR DELIVERY OF IMPORTANT INFORMATION

Following the questions regarding frequency of use of information sources for the respondents' two most important work activities, this question was asked:

> "When you need information for your job, sometimes there is a delay between when you start to look for it and when you actually find/receive it. The amount of time you can allow will depend on the situation, but considering the same two most important work activities you have just rated, how much time can you usually allow to elapse after realizing the need for information?"

The table reports the percentages of each subaudience indicating each response ranging from "a few hours" to "more than two weeks." The total column reports the percentage for the entire sample. The chi square test indicates that there are highly significant differences among the subaudiences in the amount of delay they can tolerate.

The small sample of federal legislative aides appear to need information most quickly; half of them indicating that they can wait no longer than one day (compared to approximately 31% of the total sample). Generally, the various LEA audiences (teachers, principals, "other" staff, LEA administrators, and local boards) are fairly similar to each other; typically they can wait two or three days, but 15 to 21 percent of each of these LEA subaudiences can wait no more than a few hours, and 18 percent or fewer of each LEA subaudience can wait "about two weeks" or longer. The SEA staff are very similar to the LEA subaudiences. State legislators can wait just a little longer; half can wait about a week or longer to receive information after requesting it; but 23 percent need information within a day of requesting it. The four higher education subaudiences seem to be able to wait longer than most of the other audiences. The majority of institutional researchers (54%), social scientists (52%), and educational faculty (56%), can wait about a week or longer, and 46 percent of the chief administrators can wait this long. However, about ten percent of each of these subaudiences need information within a few hours, and another nine percent (except 4% for institutional researchers) need the information within one day. ISA staff are most similar to the higher education institutional researchers; nearly a fourth of both groups can wait about two weeks or longer, and approximately half can wait a week or longer. Only seven percent of the ISA staff need information within a few hours. State board members can tolerate the longest

TABLE IV.9 QUESTION II. ABOUT THE INFORMATION SOURCES YOU USE IN YOUR MOST IMPORTANT WORK ACTIVITIES

2. When you need information for your job, sometimes there is a delay between when you start to look for it and when you actually find/receive it. The amount of time you can allow will depend on the situation, but considering the same two most important work activities you have just rated, how much time can you usually allow to elapse after realizing the need for information?

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE					
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	TOTAL	Chi Square P-Level
	II.2: Allowable Time Lapse	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
(1)	A few hours	14.9	19.1	20.7	18.4	6.6	14.0	10.8	9.3	10.6	12.7	16.9	3.0	11.5	30.0	15.2	***
(2)	One day	19.5	17.3	17.6	19.4	14.8	21.5	9.2	3.7	9.1	9.5	13.3	3.0	11.5	20.0	15.4	
(3)	2-3 days	36.2	24.7	29.8	22.3	24.6	25.2	33.8	33.3	28.8	22.2	31.3	39.4	26.9	40.0	29.0	
(4)	About a week	20.7	21.0	20.2	24.3	29.5	21.5	30.8	27.8	21.2	33.3	27.7	30.3	42.3	10.0	24.2	
(5)	About two weeks	4.0	10.5	4.8	9.7	13.1	8.4	6.2	14.8	21.2	15.9	9.6	6.1	3.8	0.0	9.0	
(6)	More than two weeks	4.6	7.4	6.9	5.8	11.5	9.3	9.2	11.1	9.1	6.3	1.2	18.2	3.8	0.0	7.2	
	N =	174	162	188	103	61	107	65	54	66	63	83	33	26	10	1,195	

delays of all subaudiences. Only six percent (compared to 31% for the total sample) require information within one day and 18 percent can wait more than two weeks.

Overall, about 30 percent of these users need information within one day regarding their most important work activities; nearly the same proportion (29%) can wait two or three days; another fourth (24%) can wait about a week. However, only 16 percent can wait as long or longer than two weeks. These data confirm that reasonably rapid response times are necessary for the majority of users, if the information requested deals with important work activities. The relatively short response times suggest that a mail exchange (request sent and information returned) would be tolerable for only a small proportion of users, and that any kind of responsive information system needs to aim for an average response time of a day or two and certainly less than a week when dealing with priority requests. This suggests that most information sources must be local or accessible through telecommunication channels (telephone, on-line information system, computer network) for both the request and the delivery of information relating to users' most important work activities.

CHAPTER V

QUESTION III. ABOUT THE USEFULNESS OF THE INFORMATION SOURCES YOU USE

A. OVERVIEW

The third section of the questionnaire dealt with just one major question.

III. ABOUT THE USEFULNESS OF THE INFORMATION SOURCES YOU USE

1. On the previous page you told us how frequently you used a number of information sources in connection with two important work activities. Now please consider all the activities you perform and rate this same list of sources in terms of their usefulness in providing you with the information you need for any part of your work.
2. Please identify (by name, title, or description) the single most useful source of information in your work.

Exactly the same list of 18 information sources that were rated for frequency of use with respect to the most important work activity in Section II of the questionnaire were repeated. The questionnaire was deliberately designed so Section III would be on the reverse side of the questionnaire page so that ratings on the previous question would not be visible. The instructions deliberately emphasized that the contrast was usefulness for all activities rather than frequency for most important activities. In the next section, we see that despite these differences in instructions (and including a change in the rating scale) virtually the same general information is obtained, at least with respect to item averages for subaudiences. The correlations, across 18 sources, between averages for frequency of use (for most important activity) and usefulness (for all activities) are virtually perfect (.94 to .99) for each of the 14 subaudiences. Consequently, the information regarding usefulness is highly similar to that discussed in the previous chapter. For this reason, the treatment of the individual source ratings in this chapter is brief. Instead, attention is turned to the matter of intercorrelations among the 18 sources and the possibility of deriving a smaller set of information source usefulness measures.

A second section presents the results of the correlational and factor analysis of the usefulness ratings of the 18 sources. Six factors extracted 63 percent of the intercorrelation covariance. The six factors are identified as: 1. formal print sources (e.g., libraries, abstracts, reference books); 2. informal, local sources (e.g., telephone, discussions, files, memos); 3. external personal contacts; 4. current print sources (e.g., newsletters, journals); 5. professional instructional awareness and knowledge sources (e.g., conventions, workshops, curriculum materials, journals, textbooks); and 6. personal sources (e.g., personal files and personal library).

A final section describes several source use "indexes" that were created, partly as a result of the factor analysis findings, to summarize source use. Given the fact that there are highly significant differences among the 14 subaudiences on all the individual items, all the "indexes" are also significant. Differences among subaudiences are discussed.

B. USEFULNESS RATINGS

Each of the 18 information sources listed in the adjacent table were rated on a four-point scale: (1) I Rarely or Never Use the Source; I Use This Source and It Is--(2) Of Minor Use; (3) Moderately Useful; (4) Highly Useful. The table reports the 18 item averages for each of the 14 subaudiences.* The total column in this table is the simple average across all 1328 responses (not an unweighted average of subaudiences averages). The significance tests reported are F-tests based on one-way analyses of variance. The F-tests are not exact and the P-levels are liberal because the data are treated as if they were obtained by simple random sampling.

Note that this numerical rating scale increases with degrees of usefulness and ranges from 1 to 4, while in the previous chapter the scale decreases with frequency and ranges from 1 to 3. Hence, the data in the two tables are unfortunately not easily compared. However, when one inspects the usefulness data, either in terms of differences among subaudiences for individual information sources or in terms of the relative usefulness or frequency of use of the 18 sources for individual subaudiences, one is struck with the fact that essentially the same patterns are observed. There are highly significant differences among the 14 subaudiences for all 18 sources. Essentially the same groups of subaudiences are at the extreme ends (high and low) for each source whether considered in terms of frequency of use for most important activity or usefulness for all activities. The product moment correlations between usefulness and frequency averages over the 18 sources for each of the 14 subaudiences are indeed remarkable. They range from -.94 to -.99.** Inspection of the correlation residuals indicates that the less than perfect relationships tend to be associated with sources that are either relatively infrequently used, but tend to be useful for some subaudiences (e.g., workshops, conventions, curriculum materials) or, conversely, sources that are relatively frequently used, but are not quite as useful as their frequency of use would imply (e.g., memos and correspondence, library in own organization, department files). However, even these differences are quite small.

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* There may be some question about whether the four response categories represent equal intervals on a scale of usefulness, but treating the categories this way does serve to summarize the subaudience differences conveniently.

**Negative correlation signs are due to the opposed scaling of the frequency and usefulness response categories.

TABLE V.1 QUESTION III. ABOUT THE USEFULNESS OF THE INFORMATION SOURCES YOU USE

1. On the previous page you told us how frequently you used a number of information sources in connection with two important work activities. Now please consider all the activities you perform and rate this same list of sources in terms of their usefulness in providing you with the information you need for any part of your work. (Please ch k one box in each row.)

I Rarely or Never Use This Source	I Use This Source And It Is: Highly Useful	Moderately Useful	Of Minor Use
1	4	3	2

USEFULNESS		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE					F-TEST	
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	TOTAL	P-Level	F-Value
1.	Workshops, seminars, graduate courses	3.12	3.29	3.35	3.49	3.25	3.07	2.51	2.42	2.56	3.06	2.87	2.50	2.68	1.80	3.10	***	13.4
2.	Telephone calls to people in other organizations	2.25	2.96	2.88	3.40	3.49	3.44	3.58	3.15	2.81	2.45	2.87	3.38	3.50	3.30	2.97	***	20.8
3.	Memos and correspondence	2.53	3.06	2.76	3.29	3.28	3.32	3.52	3.15	2.72	2.67	2.82	3.32	3.14	3.20	2.97	***	11.7
4.	Abstracts, indexes, bibliographies	2.35	2.16	2.40	2.34	2.26	2.55	2.01	2.20	3.44	3.11	1.92	1.94	2.00	1.90	2.36	***	14.0
5.	Library or resource center in my own organization	3.23	2.77	2.99	2.83	2.74	2.87	2.86	2.84	3.53	3.52	2.38	2.68	2.82	3.10	2.94	***	8.9
6.	Educational newsletters, bulletins, announcements	2.99	3.44	3.18	3.47	3.20	3.32	3.25	2.98	3.07	3.22	3.38	3.50	3.14	2.90	3.24	***	5.0
7.	Educational journals	3.14	3.46	3.28	3.39	3.12	3.11	2.91	2.75	3.49	3.67	2.95	3.18	2.64	2.50	3.21	***	8.1
8.	Telephone calls to people in my own organization	2.59	3.46	3.15	3.51	3.40	3.40	3.75	3.55	2.94	2.69	3.28	3.76	3.39	3.70	3.22	***	15.8
9.	Technical reports, government publications	2.19	2.33	2.28	2.60	2.49	2.95	2.59	2.80	2.78	2.66	2.49	2.59	2.93	3.10	2.49	***	7.3
10.	Other libraries, resource centers, or information services	3.01	2.60	2.78	2.73	2.89	2.72	2.19	2.11	2.81	2.70	2.05	2.41	2.46	2.20	2.65	***	9.3
11.	Curriculum materials	3.46	3.39	3.04	2.94	3.11	2.68	2.65	1.80	2.78	3.17	2.61	2.09	1.86	1.40	2.95	***	24.3
12.	Face-to-face discussion or conferences with people in my own organization	3.45	3.76	3.61	3.71	3.85	3.69	3.88	3.56	3.26	3.34	3.47	3.88	3.54	3.50	3.61	***	5.4
13.	Personal library	3.44	2.93	3.22	3.11	3.09	3.08	2.93	3.22	3.75	3.80	2.49	2.62	2.61	2.60	3.14	***	14.7
14.	Conventions, professional association meetings	2.67	3.12	3.05	3.31	3.28	3.14	3.42	2.95	3.24	3.16	2.82	3.06	2.82	1.80	3.04	***	7.6
15.	Notes and files in my own office	3.43	3.32	3.57	3.61	3.49	3.49	3.51	3.53	3.63	3.66	2.92	3.29	3.32	3.60	3.45	***	5.7
16.	Office department or organization files	2.64	2.86	2.82	3.23	2.82	3.15	3.25	3.38	2.16	2.33	2.65	2.68	3.04	2.60	2.84	***	10.5
17.	Face-to-face discussion or conferences with people in other organizations	2.47	3.05	2.97	3.23	3.48	3.43	3.39	2.98	2.88	2.77	2.82	3.41	3.68	3.30	3.02	***	12.6
18.	Textbooks, reference books	3.58	2.84	3.11	2.83	2.78	2.64	2.32	2.51	3.53	3.53	2.24	2.09	2.18	2.10	2.92	***	25.3
	N =	205	187	210	119	65	117	69	55	68	64	97	34	28	10	1328	-	-

The practical implication is that, at least at the level of aggregation of subaudiences, we find that ratings of frequency of use and usefulness (despite major differences, at least for many subaudiences, in reference to the most important or all work activities) provide essentially identical information regarding patterns of use of information sources.

Because the results for the usefulness ratings so closely parallel those discussed extensively in the previous chapter (regarding frequency of use), we see no great value in repeating a similar discussion in this chapter. The data are presented for those who may care to inspect details. There are some small differences between the two sets of data that might be of possible interest, including, of course, the rating averages themselves.* Rather we turn, in the next two sections, to an effort to summarize this information about sources more compactly.

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* Usefulness rating averages range from 1.90 (less than "Of Minor Use" to federal aides for abstracts, etc.) through to 3.88 ("Highly Useful" to nearly all higher education chiefs for face-to-face discussions with people in own organization).

C. FACTOR ANALYSIS OF INFORMATION SOURCE USEFULNESS RATINGS

The 18 usefulness ratings for each respondent were intercorrelated and factor-analyzed (principal axis solution, .9 Eigenvalue cut-off for factor extraction, varimax rotation). The data are displayed in the same general format as that used in the previous presentation of factor analyses for work activities. The correlations are presented for inspection; however, our focus is on the factor loadings reported at the right hand side of the table.*

We note first that the Eigenvalue cut-off was reduced to .9 in order to extract two additional factors, for a total of six, which account for 62.8 percent of the covariance among the 18 items.**

Factor I. Formal Print Sources (Instructional Planning) (23.9%).*** This factor is identified by the following items (factor loadings in parentheses): 10. other libraries, resource centers, or information services (.68); 18. textbooks and reference books (.59); 4. abstracts, indexes, bibliographies (.53); 11. curriculum materials (.52); 5. library or resource center in own organization (.50). The existence of curriculum materials and textbooks in this set suggests that instructional planning may be an important element in this factor. Apparently the users search (abstracts, indexes, bibliographies) and then attempt to locate specific items (own and other libraries and resource centers).

Factor II. Informal Local Sources (19.9%). This factor is identified by several items: 8. telephone calls to people in own organization (.60); 12. face-to-face discussions or conferences with people in own organization (.59); 16. office, department, or organization files (.48); 3. memos and correspondence (.42); 15. personal files (.34). This factor involves personal and to a somewhat lesser degree print sources, but all are of a "local," informal character.

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* These correlations and loadings are based on a four-point scale. Correction for coarse grouping would increase the reported value by a factor of 1.19.

** The first four factors, all with Eigenvalues over 1.0, account for 52.2 percent. Eleven factors are needed to exceed 80 percent.

***Figures in parentheses following each factor identification indicate percent of total covariance accounted for by the factor.

TABLE V.2 FACTOR ANALYSIS - SOURCES

USEFULNESS	Mean	Standard Deviation	N	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Variable	Factor I	Factor II	Factor III	Factor IV
Workshops, seminars, graduate courses	3.10	1.01	1318	1	-	04	07	10	13	21	24	02	05	19	32	06	17	36	09	08	05	25	1	17	06	02	10
Telephone calls to people in other organizations	2.97	1.02	1322	2	04	-	48	-03	-09	16	-0	47	25	03	-13	20	-06	19	09	27	53	-15	2	-09	25	76	03
Memos and correspondence	2.97	0.95	1313	3	07	48	-	03	04	23	06	42	29	03	-01	23	-01	15	20	36	31	-10	3	01	42	44	[illegible]
Abstracts, indexes, bibliographies	2.36	1.02	1305	4	10	-03	03	-	36	19	32	-14	29	41	21	-11	29	14	14	-01	02	36	4	52	-17	09	27
Library or resource center in my own organization	2.94	1.00	1307	5	13	-09	04	36	-	17	20	-05	13	35	27	-01	26	09	15	10	-04	36	5	50	05	-07	13
Educational newsletters, bulletins, announcements	3.24	0.80	1321	6	21	16	23	19	17	-	50	13	31	20	19	11	06	31	05	13	15	10	6	14	15	11	68
Educational journals	3.21	0.88	1318	7	24	-01	06	32	20	50	-	-02	22	25	32	01	25	32	09	03	04	31	7	26	-02	-03	55
Telephone calls to people in my own organization	3.22	0.98	1317	8	02	47	42	-14	-05	13	-02	-	13	-09	-11	44	-13	11	14	35	30	-22	8	-15	60	35	05
Technical reports, government publications	2.49	0.96	1315	9	05	25	29	29	13	31	22	13	-	29	04	08	10	14	13	22	24	10	9	28	07	37	[illegible]
Other libraries, resource centers or information services	2.65	0.98	1315	10	19	03	03	41	35	20	25	-09	29	-	37	-05	28	12	08	04	13	38	10	68	-06	15	10
Curriculum materials	2.95	1.04	1315	11	32	-13	-01	21	27	19	32	-11	04	37	-	06	25	14	11	03	-04	44	11	52	11	-19	04
Face-to-face discussion or conferences with people in my own organization	3.61	0.75	1319	12	06	20	23	-11	-01	11	01	44	08	-05	06	-	-02	08	23	28	24	-13	12	-07	58	09	-02
Personal library	3.14	0.93	1315	13	17	-06	-01	29	26	06	25	-13	10	28	25	-02	-	13	35	02	-02	44	13	38	-08	-03	02
Conventions, professional association meetings	3.04	0.91	1320	14	36	19	15	14	09	31	32	11	14	12	14	08	13	-	08	14	24	11	14	02	03	24	01
Notes and files in my own office	3.45	0.79	1319	15	09	09	20	14	15	05	09	14	13	08	11	23	35	08	-	30	11	15	15	14	34	04	01
Office department or organization files	2.84	0.98	1313	16	08	27	36	-01	10	13	03	35	[illegible]	04	03	28	02	14	30	-	25	-06	16	04	48	24	08
Face-to-face discussion or conferences with people in other organizations	3.02	0.97	1314	17	05	53	31	02	-04	15	04	30	24	13	-04	24	-02	24	11	25	-	-08	17	01	21	60	03
Textbooks, reference books	2.92	1.03	1301	18	25	-15	-10	36	36	10	31	-22	10	38	44	-13	44	11	15	-06	-08	-	18	59	-17	-12	02

5. personal files (.34). This factor involves personal and to a somewhat lesser degree print sources, but all are of a "local," informal character.

Factor III. External Personal Contacts (6.8%). This factor is marked by one high loading item and two other items with somewhat lower loadings: 2. telephone calls to people in other organizations (.76); 17. face-to-face discussions or conferences with people in other organizations (.60); and 3. memos and correspondence (.44). This factor clearly involves personal contacts with people outside the user's organization, primarily through oral communication, but possibly also through correspondence.

Factor IV. Current Awareness Print Sources (5.6%). There are two items with appreciable loadings on this factor: 6. educational newsletters, bulletins, announcements (.68) and 7. educational journals (.55). Item 9. technical reports, government publications displays a smaller loading (.37). Factor IV seems to identify users who find it useful to read a variety of publications to keep current on events in educational areas.

Factor V. Professional (Instructional) Awareness and Knowledge (3.6%). While the previous factor focuses on print sources, this somewhat weaker factor seems to be primarily identified with personal contact sources for maintaining professional awareness: 1. workshops, seminars, graduate courses (.53); 14. conventions and professional meetings (.49). Note, however, that curriculum materials (.40) and journals (.33) have modest loadings which suggest that more formal forms of both personal and print sources are loosely clustered (see correlations) to form this factor. Factor V seems to have a disciplinary or professional awareness and competence-building orientation while Factor IV seems to have a more general awareness character.

Factor VI. Personal Sources (3.0%). This factor involves a couple of items: 15. notes and files in my own office (.61), and 13. personal library (.52). This small factor tends to identify the users who prefer not to go beyond their own personal written and print sources to find the useful information they need in their work.

To summarize, usefulness ratings of 18 types of information sources were factor-analyzed. Six orthogonal factors, accounting for 63 percent of the covariance among the items, were extracted. They depict the following patterning of sources:

I. Formal Print Sources (Instructional Planning)
II. Informal Local Sources
III. External Personal Contacts
IV. Current Awareness Print Sources
V. Professional (Instructional) Awareness and Knowledge
VI. Personal Sources.

D. INFORMATION SOURCE "INDEXES"

The correlation and factor analysis results presented above indicate that, due to the pattern of intercorrelation among sources, we can substantially reduce the number "measures" of source use. However, we chose not to use the factor scores themselves and rather have used a priori plans plus the factor analysis results to guide creation of somewhat simpler, more easily interpretable, and probably more robust measures,* which are simple averages of several source ratings or ratios of two averages. The averages have the advantage of being directly comparable with the ratings of individual sources and directly interpretable in terms of the usefulness scale categories.

The following table summarizes these results. Again the entries are averages for each subaudience. Note especially that the data for ratios are averages of the ratios of the two index scores for a single respondent; these are not the same as the ratios of the averages for subaudiences (which the reader may wish to compute from the tabled entries).

We note briefly that the differences among the 14 subaudiences are highly significant for every index, a not particularly surprising result since all of the individual source ratings on which these indexes are based also show highly significant average differences among the subaudiences. Each index will be discussed briefly. Indexes based on averages are all presented in the upper part of the table, followed by all the ratio indexes to aid visual inspection (since the two types of figures differ in their characteristics). However, in the following discussion each ratio is discussed immediately following the presentation of the two averages on which it is based.

Usefulness of Oral Sources. This index was formed by summing the usefulness ratings for six "oral" sources (1. workshops, seminars, graduate courses;

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* Factor scores tend to capitalize on chance. By now there is a moderately extensive body of research and theory which suggests that in many practical applications equal weighting of valid variables leads to results that stand up better under cross validation than differential weights (Wainer, 1976; Einhorn, 1975; Kaiser, 1970).

TABLE V.3 QUESTION III. ABOUT THE USEFULNESS OF THE INFORMATION SOURCES YOU USE: INFORMATION SOURCE "INDEXES"

1. On the previous page you told us how frequently you used a number of information sources in connection with two important work activities. Now please consider all the activities you perform and rate this same list of sources in terms of their usefulness in providing you with the information you need for any part of your work. (Please check one box in each row.)

I Rarely or Never Use This Source	I Use This Source And It Is: Highly Useful	Moderately Useful	Of Minor Use
1	4	3	3

Nr.	QUESTIONNAIRE ITEM	PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				TOTAL	F-TEST	
		TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.		P-Level	F-Value
	Averages and ratios based on the sources in the previous table (item numbers indicated in parentheses)																	
O	Oral Averages (1, 2, 8, 12, 14, 17)	2.79	3.27	3.17	3.44	3.45	3.36	3.42	3.16	2.99	2.91	3.02	3.33	3.27	2.90	3.16	***	18.7
P	Print Averages (3, 4, 6, 7, 9, 15, 16, 18)	2.71	2.96	2.91	3.14	3.02	3.16	3.05	3.02	3.07	3.01	2.74	2.99	2.99	2.89	2.95	***	8.8
O/P	Oral/Print Ratio	1.03	1.14	1.11	1.11	0.92	1.08	1.13	1.06	0.98	0.97	1.15	1.13	1.12	1.04	1.09	***	5.9
E	External Averages (2, 10, 17)	2.58	2.87	2.88	3.12	3.28	3.20	3.05	2.80	2.88	2.64	2.58	3.07	3.21	2.93	2.88	***	12.2
I	Internal Averages (5, 8, 12)	3.09	3.35	3.27	3.35	3.32	3.32	3.50	3.38	3.29	3.18	3.11	3.44	3.25	3.43	3.26	***	4.3
E/I	External/Internal Ratio	0.89	0.88	0.90	0.96	1.13	1.00	0.89	0.84	0.89	0.84	0.89	0 .90	1.01	0.88	0.90	***	4.1
F	Formal/Library Averages (4, 5, 7, 9, 13, 18)	2.98	2.75	2.89	2.85	2.75	2.87	2.60	2.77	3.47	3.38	2.41	2.51	2.53	2.55	2.84	***	19.2

2. telephone calls to people in other organizations; 8. telephone calls to people in my own organization; 12. face-to-face discussions or conferences with people in own organization; 14. conventions, professional association meetings; and 17. face-to-face discussions or conferences with people in other organizations). This sum was divided by the number of items (six) which brings the measure back to the same usefulness scale used for the original responses (1 = Never or Rarely Use, 2 = Of Minor Use, 3 = Moderately Useful, 4 = Highly Useful). We find that administrators have the highest averages on this index: ISA staff (3.45), LEA staff (3.44), higher education chief administrators (3.42), and SEA staff (3.36). Note that even the school building administrator (principals) is high (3.27), although the average for state board members is slightly higher (3.33), and this average for principals is matched by state legislators. Those on the low side of this index are: school teachers (2.79) and federal legislative aides (2.90). Note that this range (2.90 to 3.45), although highly significant, is still relatively narrow and primarily in the "moderately" useful or higher rating area.

Usefulness of Print Sources. This index is an average of eight "print" sources (3. memos and correspondence; 4. abstracts, indexes, and bibliographies; 6. educational newsletters, bulletins, announcements; 7. educational journals; 9. technical reports, government publications; 15. notes and files in my own office; 16. office, department, or organization files; and 18. textbooks, reference books). In this instance we again find all the administrators scoring relatively high, but these subaudiences are joined by all of the higher education subaudiences: SEA staff (3.16), LEA staff (3.14), social scientists (3.07), higher education chief administrators (3.05), institutional researchers (3.02) ISA staff (3.02), and educational faculty (3.01). Note that all these averages are closely clustered just above 3.0 = Moderately Useful. Teachers are again the subaudience with the lowest average (2.71), closely followed by local school board members (2.74). Again, as in the case of oral sources, the range for print sources is relatively narrow (2.71 to 3.16) and moderately high.

Oral/Print Ratio. These ratios tend to be "ipsative," that is they tend to compensate for the possible situation where both indexes are relatively high or low; what each ratio highlights is whether users tend to find one type of source distinctly more or less useful than another type. In this case, ratios greater than 1.00 point to greater usefulness of oral sources than print sources, ratios less than 1.00 indicate relatively greater value for print sources. We note that with the exception of educational faculty (0.97) and social scientists (0.98), all ratios are over 1.00, indicating a higher usefulness for oral sources. The highest ratio averages (oral over print) are: local school board members (1.15), school principals (1.14), state school board members (1.13), and state legislators (1.12).

Usefulness of External Sources. Items referring to face-to-face discussions, telephone calls, and libraries or resource centers were deliberately listed twice, one referring to "in my own organization" (internal) and one referring to "in other organizations" (external), to gauge the propensity of users to seek information through personal contact with individuals inside or outside their organization. The external index is the average of items 2 (telephone calls), 10 (libraries or resource centers), and 17 (face-to-face discussions or conferences). The subaudiences who tend to find external contacts most useful include: ISA staff (3.28), state legislators (3.21), SEA staff (3.20), LEA staff (3.12), state board members (3.07), and higher education chief administrators (3.05). Note that although there are minor permutations of the rank order, these are the same top six subaudiences as for the "oral index." Two of the three items in this "external index" are a subset of those in the oral index. Again teachers are low (2.58), but they are tied with local board members (rather than federal aides who were second lowest for the "oral index").

Usefulness of Internal Sources. This index was formed in the same way as the "external index," but the items were source item numbers 5, 8, 12. In this instance we find a somewhat different group of subaudiences who find sources in their own organization useful: higher education chief administrators (3.50), state school board members (3.44), federal legislative aides (3.43), and institutional researchers (3.38). The administrators, including school principals, closely follow. Again teachers (3.09) and local board members (3.11) are low. (By now it is generally obvious that teachers and local board members tend to rate most sources, but not all, of relatively lower usefulness than do most other subaudiences.)

External/Internal Ratio. Note that ratios over one indicate higher usefulness for external sources and ratios under one indicate higher usefulness for internal sources. Only one subaudience has a ratio substantially over one, ISA staff (1.13). This group, presumably because of its high degree of interpersonal contacts with schools and other educational groups, is alone in a high external orientation. Two other subaudiences are approximately evenly balanced between external and internal: state legislators (1.01) and SEA staff (1.00). Again these two groups would seem to have substantial need to deal with persons outside their own agencies. All other subaudiences have ratios under one, although the lowest ratio, educational faculty and institutional researchers, is only 0.84.

Usefulness of Formal Print and Library Sources. This index consists of the average for the following items: 4. abstracts, indexes, bibliographies; 5. library or resource center in my own organization; 7. educational journals, 9. technical reports, government publications; 13. personal library, 18. textbooks, reference books. Noting that these are the traditional sources researchers and scholars use, it is not surprising that we find that there are just two groups with averages on the index substantially over 3.0 = Moderately Useful, namely: social scientists (3.47) and educational faculty (3.38). All other groups score this set of resources of substantially lower usefulness. But note that school teachers (2.98), "other" school staff (2.89), LEA staff (2.85), and SEA staff (2.87) are not far below the 3.0 level. Although it should be no surprise, the governance audiences find the formal information sources to be of least (but yet somewhat more than "Minor") value: local school board members (2.41), state school board members (2.51), state legislators (2.53), and federal legislative aides (2.55). Note also that higher education chief administrators (2.60) and institutional researchers (2.77), although tending to find information in other print sources (e.g., notes and files, office files, memos and correspondence), find distinctly less use of formal print sources in their work.

Summary. In this chapter we have examined information concerning users' ratings of the usefulness of 18 types of information sources. Despite major shifts in reference to usefulness for all work activities as contrasted to frequency of use for the users' most important work activities, the 18 information sources maintain virtually the same position relative to each other. With very minor exceptions, questions regarding frequency of use and usefulness of sources tend to extract highly similar information. The differences among the 14 subaudiences in their ratings of each information source are all highly significant statistically. Subaudience item averages range from 1.90 (below "Of Minor Use") to 3.88 (approaching the scale ceiling of 4.0, "Highly Useful").

Generally, the correlations among the 18 sources are not particularly high; however, six easily identifiable and interpretable clusters of sources were identified by factor analysis. A priori plans and the factor analysis results were used to create several indices which substantially reduce the number of information source measures. All the indices reveal significant and meaningful differences among the 14 subaudiences in their tendency to find different types of information sources useful in their work. Given the very high correlation between usefulness and frequency, we may also generalize that these same patterns tend to hold for frequency of use of sources.

CHAPTER VI

QUESTION IV. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE INFORMATION SOURCES YOU PREFER

A. OVERVIEW

In the two previous sections, information sources were considered from the standpoint of frequency of use in connection with users' most important work activities and in terms of usefulness for all work activities. In this section, the users' two most preferred information sources are identified. Then, respondents' reasons for selecting these sources are examined. Respondents were also asked to describe their degree of isolation from information sources and to indicate how frequently they exchange educational information with educators or other professionals.

IV. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE EDUCATION INFORMATION SOURCES YOU PREFER

1a. Users have various reasons for preferring the information sources they like to use. Please refer to the numbered list of sources on the opposite page and note the number (1 - 20) of the two sources you most prefer to use. Please mark these two numbers in the boxes at the top of the two columns on the right.

1b. Now, for each of these two sources, please rank the reasons listed below in order of their importance to your preference for the source.

2. How would you describe your degree of isolation from information sources you would like to have available to you?

3. How often do educators or other professionals come to you for information, or do you pass information on to others relating to educational matters?

Preferred Sources. Three types of "oral" sources (face-to-face discussions; workshops, seminars, graduate courses; and telephone calls) are among the most frequently mentioned preferred sources and account for 46 percent of the first-listed preferred sources and 39 percent of the second-listed preferred sources.

Other sources mentioned by at least 5 percent of the respondents include: educational journals, personal library, notes and files in own office, library or resource center in own organization, and educational newsletters, bulletins, or announcements.

Reasons for Preferring Sources. Respondents were presented with a list of fifteen characteristics of information sources which might account for their preferences and were asked to rank the list of reasons in order of their importance for both the first and second preferred source. Given the highly significant differences among subaudiences in their ratings of frequency of use of sources and usefulness of sources described in the previous two sections, it came as a surprise that only 8 of the 30 tests of item differences among the 14 subaudiences were significant. The subaudiences did differ significantly in their rankings of the characteristics of accessibility, accuracy, and opportunity for discussion or exchange of ideas with respect to the first preferred source, and on the characteristics of rapid response, accuracy, responsiveness to particular problems, the reason "keeps me aware of new developments," and opportunity for discussion or exchange of ideas with respect to the second preferred source.

The more frequently mentioned characteristics (for the first preferred source) are: (1) is likely to have the information I want, (2) is near at hand or easily accessible, (3) is responsive to my particular problem or question, (4) is easy to use, and (5) is usually available when I need it. By contrast, the lowest-ranked characteristics include: (11) provides opportunity for discussion or exchange of ideas, (12) is fast in responding, (13) is complete, comprehensive, (14) is free or inexpensive, and (15) is objective, impartial, not biased.

The rankings of the 15 characteristics are slightly different for the two preferred sources. Rank order correlations between pairs of average rankings for each subaudience range from .64 to .85. One notable difference is the characteristic "is easy to use," which ranged from second to eighth place for source one, but is the first-ranked characteristic of every subaudience (except the educational faculty who gave it second place) on their second preferred source.

Isolation from Information Sources. Respondents were asked to rate their degree of isolation from the sources they would like to have available in terms of four alternatives: (1) not isolated, (2) somewhat isolated, (3) seriously isolated, and

(4) almost completely isolated. A chi square test indicates that the 14 subaudiences are not significantly different in their distribution of choices over these four alternatives. Percentages based on simple averages over the 1,302 persons responding to this item indicate that 29 percent checked "not isolated," 59 percent checked "somewhat isolated," 10 percent checked "seriously isolated," and less than 2 percent checked "almost completely isolated."* Hence the 14 subaudiences are quite similar in their sense of isolation, and only a small percentage consider themselves seriously or completely isolated from the information sources they would like to have available.

Frequency of Information Exchange. The last question in Section IV asked: "How often do educators or other professionals come to you for information, or do you pass information on to others relating to educational matters?" A chi square test indicates that there are highly significant differences among the 14 subaudiences in their frequency of exchange of information. Generally, state agency staff, chief administrators of higher education institutions, institutional researchers, and intermediate service agency staff display the highest rates of information exchange, with 70 percent or more indicating they exchange information at least daily or more often. By contrast, state and local school board members have the lowest rates of exchange with fewer than 16 percent of local board members and 22 percent of state board members exchanging information this often.

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* The next section of the questionnaire asked respondents to rate their satisfaction with current sources with respect to nine general purposes for seeking information. Dissatisfaction with current sources is correlated with feeling of isolation from sources users would like to have available.

B. MOST PREFERRED INFORMATION SOURCES

Respondents were referred to the list of information sources they had just ranked for usefulness in Section III of the questionnaire, and they were asked to identify the two sources they most prefer to use. Table IV-1 lists the sources rank ordered by the percentage of the responses for both the first and second preferred source.

Clearly, face-to-face discussions or conferences are the preferred source of information with 22.6 percent listing this type of source as their most preferred source and another 22.9 percent listing it as their second preferred source. Note that internal and external discussions have been combined: 20.1 percent (adjusted for non-response) marked item 12, face-to-face discussions or conferences with people in my own organization as their first preferred source, another 15.8 percent marked this item as their second preferred source. Discussions or conferences with people in other organizations accounted for only 2.5 percent of the first preferred sources listed and 7.1 percent of the second preferred sources. Consequently, local (internal) face-to-face discussions are preferred to external face-to-face discussions by a ratio of nearly 4 to 1.

Workshops, seminars, and graduate courses are the second most popular source of information, accounting for a perhaps surprising 14 percent of the first choices and another 6.2 percent of the second choices.

Telephone calls are third in popularity with just under ten percent marking this source as their first choice and a similar percentage marking it as the second choice. Again, internal and external calls were combined. The proportions are almost equal: 4.7 percent identifying calls to people in own organization and 5.2 percent identifying calls to people in other organizations for most preferred source; and 5.4 percent marking calls to people in own organization and 4.4 percent marking calls to people in other organizations on second preferred source.

These first three types of "oral" sources account for 42.7 percent of the total number of choices made. Note that of 15 specific types of sources listed, only one other is an oral source: # 14, conventions and professional meetings, which accounts for another 3.9 percent of the total number of first and second choices. Hence, four types of "oral" sources account for 46.6 percent of all first or second preferred sources (48.5% of first preferred sources; 44.8% of second preferred sources).

TABLE VI.1 QUESTION IV.1a SOURCES RESPONDENTS IDENTIFIED AS THE TWO SOURCES THEY MOST PREFERRED TO USE

(Sources Ordered by Total Number Listing it as First or Second Preferred Source.)*

Item Nr.	Source	Preferred Sources			
		First %	Second %	Total %	Cum. %
12/17	Face-to-face discussions or conferences	22.6	22.9	22.8	22.8
1	Workshops, seminars, graduate courses	14.0	6.2	10.1	32.9
2/8	Telephone calls	9.9	9.8	9.8	42.7
5/10	Libraries or resource centers	9.5	8.4	8.9	51.6
7	Educational journals	6.9	7.6	7.2	58.8
13	Personal library	6.9	6.7	6.8	65.6
15	Notes and files in own office	5.3	7.9	6.6	72.2
6	Educational newsletters, bulletins, announcements	6.1	5.5	5.8	78.0
11	Curriculum materials	3.9	4.4	4.2	82.2
18	Textbooks, reference books	3.0	4.9	4.0	86.2
14	Conventions and professional meetings	2.0	5.9	3.9	90.1
16	Office, department, or organization files	1.9	3.3	2.6	92.7
3	Memos and correspondence	2.1	2.0	2.0	94.7
9	Technical reports, government publications	1.2	1.6	1.4	96.1
4	Abstracts, indexes, bibliographies	1.2	1.0	1.1	97.2
19/20	Other (miscellaneous) sources	3.6	2.1	2.8	100.0
	N =	1267	1261	-	-

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* Percentages are adjusted for non-response: 4.6 percent did not respond for First Preferred Source and 5.0 percent did not respond for Second Preferred Source.

Eleven "print-oriented" sources account for the remaining half of the respondents' choices. Heading this group are libraries, which account for 9.5 percent of the first choices and 8.4 percent of the second choices. Internal and external libraries and resource centers were combined. There is a strong preference for own library or resource center over other libraries or resource centers: 7.8 percent own versus 1.7 percent other on first preferred source and 6.2 percent own versus 2.3 percent other on second preferred source. Hence, no more than 4 percent indicate that they use libraries or resource centers outside their own organization as first or second preferred sources, but 14 percent do turn to their own library as a first or second choice.

Following libraries or resource centers are a number of specific types of print sources (percentages for total of first and second source in parentheses): educational journals (7.2%), personal library (6.8%), notes and files in own office (6.6%), educational newsletters, bulletins, announcements (5.8%), curriculum materials (4.2%), and textbooks or reference books (4.0%).

Conventions and professional meetings, an "oral" source, appears next. Note that only two percent list this source first, but another 5.9 percent list it as second preferred source.

The remaining print sources are: office, department, or organization files (2.6%), memos and correspondence (2.0%), technical reports and government publications (1.4%), and abstracts, indexes, and bibliographies (1.1%). Other miscellaneous sources were specified by 2.8 percent as a first source and 2.1 percent as a second source.

C. CHARACTERISTICS OF PREFERRED SOURCES

After asking respondents to identify the two sources they most preferred to use, they were asked to rank a list of 15 reasons (characteristics) for preferring each source in order of their importance. The rankings were converted to a 5-point scale, with 5 indicating a high ranking and 1 indicating a low ranking for the characteristics.* Chi square tests across the 14 subaudiences for each item indicated that only 3 of the 15 characteristics were significantly different for the first preferred source and 5 of the 15 characteristics were significantly different for the second source. The subaudience score means for these items are displayed in the table on the following page.

Accessibility (is near at hand or easily accessible) is of substantial importance as the reason for the first source preferences of institutional researchers (4.10), and is also of considerable importance to social scientists (3.73) and educational faculty (3.78). The only subaudience that tends to rank accessibility relatively low is state school board members (2.73).

Accuracy is a characteristic which has different averages among subaudiences on both the first and second preferred sources. On the first source, accuracy is of relatively greatest importance to federal legislators (3.62), and greater importance to local school board members (3.33), LEA administrators (3.21), SEA administrators (3.16), and institutional researchers (3.13). Accuracy is of relatively lesser importance to higher education chief administrators (2.64), educational faculty (2.74), school principals (2.85), and social scientists (2.89). Approximately the same groups are relatively high or low in the second source rankings, except that ISA administrators are relatively the lowest subaudience in their rankings (2.49).

Discussion or exchange of ideas (provides opportunity for discussion or exchange of ideas) is also a characteristic where there are differences in the average

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* The rankings were standardized by assigning a score of 5 if the item was ranked 1, 2, or 3; a score of 4 if the item was ranked 4, 5, or 6; a 3 if ranked 7, 8, or 9; a 2 if ranked 10, 11, or 12, and a 1 if ranked 13, 14, or 15. If the item was not ranked and fewer than 4 items were ranked, it was scored 3. If the total number of items ranked was between 4 and 6, unranked items were scored 2. If the number of unranked items was 7 or more, unranked items were scored 1.

TABLE VI.2 QUESTION IV.1b. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE INFORMATION SOURCES YOU PREFER (SIGNIFICANT ITEMS)

Characteristics for # 1 Source and # 2 Source with Statistically Significant Differences Among the Subaudiences (930≥N≥1010)

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				Chi-Square P-Level
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.F.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	
	SOURCE # 1															
#1	Accessibility	3.67	3.46	3.66	3.20	3.65	3.55	3.23	4.10	3.73	3.78	3.39	2.73	3.52	3.56	.002
#1	Accuracy	3.01	2.85	3.19	3.21	2.87	3.16	2.64	3.13	2.89	2.74	3.33	3.07	3.10	3.62	.016
#1	Discussion/Exchange	2.80	3.18	2.76	2.87	3.27	3.02	3.58	2.56	2.50	2.63	[illegible]	3.24	3.00	2.50	.015
	SOURCE # 2															
#2	Rapid Response	2.63	2.70	2.65	2.78	3.30	3.00	2.89	3.02	2.52	2.57	2.67	3.00	3.47	3.86	.035
#2	Accuracy	3.04	2.85	3.06	3.00	2.49	3.13	2.88	3.15	2.93	2.75	3.16	2.88	3.05	3.22	.027
#2	Responsiveness to Problem	3.10	3.10	3.11	3.31	3.68	3.55	3.78	3.35	3.14	2.94	2.96	3.17	3.39	2.78	.040
#2	Current Awareness	3.24	3.39	3.22	3.38	2.98	3.06	3.42	3.26	3.25	3.35	3.30	3.85	[illegible]	2.71	.004
#2	Discussion/Exchange	2.58	2.96	2.70	2.82	3.29	2.74	3.40	3.00	2.38	2.34	3.19	3.38	[illegible]	2.57	.012

rankings of subaudiences for both the first and second preferred sources of information. For their most preferred source of information, the opportunity to discuss or exchange ideas is of relatively greatest importance to higher education chief administrators (3.58), followed by ISA administrators (3.27), state board members (3.24), and school principals (3.18). This characteristic is of relatively less importance for federal legislative aides (2.50), social scientists (2.50), institutional researchers (2.56), and educational faculty (2.63). A somewhat similar pattern of high and low averages is seen for the second preferred sources.

Three characteristics not displaying significant differences among the 14 subaudiences for their first preferred sources are found to be significant for their second preferred sources.

Rapid response (is fast in responding) is relatively more important for the second preferred source of information of: federal legislative aides (3.86), state legislators (3.47), and ISA administrators (3.30), but this characteristic is relatively less important for: social scientists (2.52), educational faculty (2.57), school teachers (2.63), other school staff (2.65), and local school board members (2.67).

Responsiveness to problem (is responsive to my particular problem or question) is relatively important to most subaudiences, but is of greater importance to: higher education chief administrators (3.78), ISA administrators (3.68), and SEA administrators (3.55), and of relatively lesser importance to: federal legislative aides (2.78), educational faculty (2.94), and local school board members (2.96).

Current awareness (keeps me aware of new developments) is of relatively greatest importance for state school board members (3.85), but displays averages above 3.0 for all subaudiences except federal legislative aides (2.71) and ISA administrators (2.98).

The following two tables present the subaudience averages for each of the 15 items for both the first and second preferred sources. Since the items displaying differences have been discussed, the data in these tables will not be discussed specifically. The averages for each subaudience were ranked (over the 15

TABLE VI.3 QUESTION IV.1b. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE INFORMATION SOURCES YOU PREFER (All Items, First Preferred Source)

	PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				Chi Square P-Level
QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	
This source:															
is easy to use	3.61	3.22	3.32	3.20	3.45	3.30	2.98	3.29	3.53	3.26	3.29	3.29	3.65	3.33	NS
is near at hand or easily accessible	3.67	3.46	3.66	3.20	3.65	3.55	3.24	4.10	3.73	3.78	3.39	2.73	3.52	3.56	**
is fast in responding	2.61	2.64	2.47	2.68	3.02	3.00	2.93	3.24	2.69	2.32	2.71	3.00	3.05	3.00	NS
is free or inexpensive	2.79	2.43	2.53	2.48	2.78	2.50	2.24	2.54	2.83	2.49	2.77	2.57	2.88	2.00	NS
is usually available when I need it	3.43	3.12	3.24	3.30	3.36	3.30	2.93	3.49	3.69	3.30	3.47	3.08	3.30	3.44	NS
is likely to have the information I want	3.80	3.63	3.76	3.49	3.51	3.64	3.70	3.91	3.79	3.49	3.58	3.59	3.78	4.33	NS
is complete, comprehensive	2.76	2.44	2.82	2.48	2.31	2.69	2.06	2.67	2.68	2.51	2.55	2.72	2.47	2.88	NS
is authoritative, accurate, reliable	3.01	2.85	3.19	3.21	2.87	3.16	2.64	3.31	2.89	2.74	3.33	3.07	3.10	3.62	*
is objective, impartial, not biased	2.41	2.38	2.36	2.39	2.43	2.48	2.14	2.85	2.27	2.27	2.33	2.85	2.95	2.50	NS
is up-to-date	3.08	3.30	3.22	[illegible]	3.28	3.35	3.12	2.98	2.91	3.48	3.07	3.27	2.95	2.90	NS
is responsive to my particular problem or question	3.16	3.38	3.32	3.54	3.36	2.39	3.84	3.52	3.12	3.25	3.36	3.74	3.62	3.12	NS
keeps me aware of new developments	2.99	3.40	3.17	3.38	3.24	3.34	3.14	2.64	3.02	3.47	3.30	3.52	3.16	2.12	NS
leads me to other sources	3.12	2.93	2.85	3.15	3.20	3.06	2.88	2.77	3.49	3.35	2.88	2.92	2.79	2.88	NS
provides for new ideas or different viewpoints	3.13	3.47	3.02	3.17	3.48	3.09	3.46	2.50	2.39	3.36	3.29	3.28	3.00	2.38	NS
provides opportunity for discussion or exchange of ideas	2.80	3.18	2.76	2.87	3.27	3.02	3.58	2.56	2.50	2.63	3.12	3.24	3.00	2.50	*
N≥	126	108	132	86	45	76	49	39	42	43	43	21	16	5	

TABLE VI.4 QUESTION IV.1b. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE INFORMATION SOURCES YOU PREFER
(All Items, Second Preferred Source)

	PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				Chi Square P-Level
QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	
This source:															
is easy to use......................	4.17	4.06	4.08	3.96	4.37	3.81	4.14	3.81	3.79	3.87	3.91	4.08	3.84	4.38	NS
is near at hand or easily accessible.	3.75	3.38	3.64	3.37	3.69	3.58	3.57	3.49	3.68	3.87	3.33	3.08	3.65	3.75	NS
is fast in responding................	2.63	2.71	2.65	2.78	3.30	3.00	2.89	3.02	2.52	2.57	2.67	3.00	3.47	3.86	*
is free or inexpensive...............	2.88	2.57	2.52	2.48	2.69	2.71	2.62	2.50	2.60	2.43	2.46	2.54	3.10	2.38	NS
is usually available when I need it..	3.50	3.16	3.33	3.17	3.29	3.36	3.04	3.28	3.77	3.39	3.10	3.35	3.70	3.25	NS
is likely to have the information I want............................	3.61	3.36	3.50	3.59	3.65	3.79	3.51	3.15	3.54	3.49	3.62	3.50	3.67	4.11	NS
is complete, comprehensive...........	2.77	2.44	2.61	2.26	2.44	2.69	2.24	2.91	2.79	2.60	2.60	2.54	2.68	3.50	NS
is authoritative, accurate, reliable.	3.04	2.85	3.06	3.00	2.49	3.13	2.88	3.15	2.93	2.74	3.16	2.88	3.05	3.22	*
is objective, impartial, not biased..	2.56	2.72	2.79	2.39	2.86	2.80	2.28	2.58	2.42	2.31	2.23	2.89	2.94	2.57	NS
is up-to-date........................	3.09	3.10	3.37	3.34	3.19	3.30	3.22	3.00	2.89	3.42	3.09	3.32	2.89	3.11	NS
is responsive to my particular problem or question..................	3.10	3.10	3.12	3.31	3.68	3.55	3.78	3.35	3.14	2.94	2.96	3.17	3.39	2.78	*
keeps me aware of new developments...	3.24	3.39	3.22	3.38	2.98	3.06	3.42	3.26	3.25	3.35	3.30	3.85	3.24	2.71	**
leads me to other sources............	3.15	3.02	3.11	3.32	3.08	3.00	3.26	3.28	3.28	3.46	3.02	3.28	3.16	2.43	NS
provides for new ideas or different viewpoints...........................	2.50	2.61	2.53	2.58	2.31	2.44	2.64	2.54	2.51	2.76	2.55	2.36	2.33	2.00	NS
provides opportunity for discussion or exchange of ideas................	2.58	2.95	2.70	2.82	3.29	2.74	3.40	3.00	2.38	2.34	3.19	3.38	3.06	2.57	*
N2	98	95	110	67	29	66	36	37	36	41	38	14	12	5	

characteristics). See the table on the following page. *Rank order correlations* between the first and second source were computed. These ranged in value from .64 to .85, with a median of .76.

These rankings were summed across the 14 subaudiences for each preference (# 1 and # 2) and then reranked. The results of the reranking appear in the next table.* Since there are relatively few significant differences among the subaudiences, it seems appropriate to focus first on these overall rankings. To facilitate inspection, they are rearranged in the overall rank order for the first preferred source. This table indicates "convenience" characteristics (likely to have wanted information, accessible, easy to use, usually available) rank high for both the first and second preferred source, while comprehensiveness, low cost, and objectivity are consistently among the lowest-ranked reasons for preferring an information source.

Among the notable discrepancies between rankings of characteristics for the first and second preferred sources of information, the characteristic "is easy to use" is in fourth place (ranked from 2nd to 8th among the subaudiences) among characteristics for the first preferred source, but this characteristic is the first-ranked characteristic for the second preferred source for every subaudience (except educational faculty, who gave it second place). Another characteristic, "leads me to other sources," also jumps in rank (from 10th to 7th) as users turn from their first to their second preferred source. (This upward shift in rank order is most prominent for institutional researchers and state legislators.) Presumably, if users fail to find information with their use of their first preferred source, they would have a greater tendency to turn to a source that helps them continue their search.

Two other characteristics display marked down shifts in rankings between the first and second preferred source. The characteristic "is responsive to my particular problem" drops from third to sixth rank. (This shift is most noticeable among state and local board members and LEA administrators who rank responsiveness as especially important in the first source they prefer to use, and then much lower as a characteristic of their second source.) The characteristic "provides

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* In effect, this is an equal weighting for all 14 subaudiences.

TABLE VI.5 QUESTION IV.1b. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE INFORMATION SOURCES YOU PREFER

(Characteristics Rank Ordered Within Subaudience for First and Second Preferred Sources of Information)

	PRACTITIONERS						ADMINISTRATORS						HIGHER EDUCATION								GOVERNANCE								TOTAL OF SOURCES	
QUESTIONNAIRE ITEM	TEACH.		PRIN.		OTHER		LEA		ISA		SEA		CHIEF		INS.R.		SO.SC.		ED.F.		L.BD.		S.BD.		S.LEG.		F.LEG.		#1	#2
Source	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2	#1	#2		
This source:																														
is easy to use	3	1	6	1	3	1	7	1	3	1	6	1	8	1	6	1	4	1	8	2	7	1	4	1	2	1	5	1	72	15
is near at hand or easily accessible	2	2	3	3	2	2	6	3	1	2	2	3	5	3	1	2	2	3	1	1	3	3	13	10	4	4	3	4	48	45
is fast in responding	14	12	12	12	14	12	12	11	11	5	12	9	10	10	7	9	12	13	14	12	13	11	10	11	8	5	7	3	156	135
is free or inexpensive	12	10	14	14	13	15	14	13	13	12	14	12	13	13	14	15	11	12	13	13	12	14	15	15	13	10	15	14	186	182
is usually available when I need it	4	4	8	5	5	5	4	8	6	6	5	5	9	9	4	5	3	2	7	6	2	7	8	6	5	2	4	6	74	76
is likely to have the information I want	1	3	1	4	1	3	2	2	2	4	1	2	2	4	2	8	1	4	2	3	1	2	2	3	1	3	1	2	20	47
is complete, comprehensive	13	11	13	15	11	13	13	15	15	14	13	14	15	15	11	12	13	11	12	11	14	12	14	14	15	15	9	5	181	177
is authoritative, accurate, reliable	9	9	11	10	7	0	5	9	12	13	8	7	12	11	5	7	9	9	10	10	5	6	9	13	7	12	2	7	111	132
is objective, impartial, not biased	15	14	15	11	15	10	15	14	14	11	15	11	14	14	9	13	15	15	15	15	15	15	12	12	12	13	11	11	192	179
is up-to-date	8	8	9	7	6	4	8	5	7	8	3	6	7	8	8	10	8	10	3	5	10	8	6	7	11	14	8	8	102	108
is responsive to my particular problem or question	5	7	5	6	4	7	1	7	5	3	7	4	1	1	3	3	6	8	9	8	4	10	1	9	3	6	6	9	60	88
keeps me aware of new developments	10	5	4	2	8	6	3	4	9	10	4	8	6	5	12	6	7	7	4	7	6	4	3	2	6	8	14	10	96	84
leads me to other sources	7	6	10	8	10	8	10	6	10	9	10	10	11	7	10	4	5	6	6	4	11	9	11	8	14	9	10	13	135	107
provides for new ideas or different viewpoints	6	15	2	13	9	14	9	12	4	15	9	15	4	12	15	14	10	14	5	9	8	13	5	5	9	7	13	15	108	173
provides opportunity for discussion or exchange of ideas	11	13	7	9	12	11	11	10	8	7	11	13	3	6	13	11	14	5	11	14	9	5	7	4	10	11	12	12	139	131
Rank Order Correlation (Source #1 and Source #2) =	.76		.64		.83		.72		.67		.76		.73		.70		.76		.85		.71		.78		.80		.79		.90	

TABLE VI.6 RANK ORDER OF OVERALL RANKINGS OF REASONS FOR PREFERRING INFORMATION SOURCES

REASON FOR PREFERRING	SOURCES	
	#1	#2
is likely to have the information I want	1	3
is near at hand or easily accessible	2	2
is responsive to my particular problem or question	3	6
is easy to use	4	1
is usually available when I need it	5	4
keeps me aware of new developments	6	5
is up to date	7	8
provides for new ideas or different viewpoints	8	12
is authoritative, accurate, reliable	9	10
leads me to other sources	10	7
provides opportunity for discussion or exchange of ideas	11	9
is fast in responding	12	11
is complete, comprehensive	13	13
is free or inexpensive	14	15
is objective, impartial, not biased	15	14

for new ideas or different viewpoints" is not ranked particularly high (8th rank), but shifts markedly downward (to 12th rank). (This shift is most pronounced for school principals, 2nd to 13th; and ISA administrators, 4th to 15th.)

D. ISOLATION FROM INFORMATION SOURCES

After completing the ranking of reasons for preferring information sources, respondents were asked to indicate how isolated they were from information sources. The question and the percentages responding to each item alternative are found in the top portion of the following table.

This is one item where there is no significant difference among the responses of the 14 subaudiences. The total over the 1,302 responses to this question indicates that 29.4 percent describe themselves as "not isolated, I have ready access to any source I need." Another 59.1 percent checked the second alternative, "somewhat isolated, I may have to spend a little time or effort to obtain the information I need." Slightly under ten percent (9.5%) checked "seriously isolated, I sometimes forgo using information sources that I would like to use." Less than two percent (1.5%) marked "almost completely isolated, I frequently can not get access to the sources I would like to use." Combining the last two categories leads to the estimate that only 11 percent of these educational information audiences consider themselves seriously or almost completely isolated from information sources they would like to have available; however, the majority of users (59%) feel "somewhat isolated" and "may have to spend a little time or effort to obtain information."

Since this distribution of ratings appeared familiar, a comparison was made with the responses to Question I.3 concerning the amount of information available. Data in the second following table for both amount and degree of isolation are based on simple averages over the six subaudiences who responded to Question I.3 (teachers, principals, other staff; LEA, ISA, and SEA administrators). The similarity is so great that it would appear that adequacy of information, amount of information available, and degree of isolation from sources may amount to the same things as far as users are concerned.*

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* In the next chapter (Questionnaire Section V) data regarding users' satisfaction with current sources of information for nine types of purposes for seeking information are presented. Satisfaction is rated on a three-point scale (satisfactory, partly satisfactory, unsatisfactory). Degree of (non)isolation is correlated .27 to .39 with these nine ratings of satisfaction with current sources of information for different purposes. The higher correlations are with satisfaction with sources for keeping aware of new developments and activities and for identifying new sources of assistance; the lower correlations are for preparing articles, reports, and speeches; for evaluating educational practices; and for locating information to provide to others.

TABLE VI.7 QUESTION IV. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE EDUCATION INFORMATION SOURCES YOU PREFER

QUESTION IV.2: How would you describe your degree of isolation from information sources you would like to have available to you?

Question IV.3: How often do educators or other professionals come to you for information, or do you pass information on to others relating to educational matters?

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE					Chi Square P-Level
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	TOTAL	
	IV.2: Degree of Isolation																
(1)	Not isolated	22.5	25.3	31.9	29.9	18.5	41.0	37.7	34.5	25.4	28.1	34.4	30.3	42.9	44.4	29.4	N.S.
(2)	Somewhat isolated	65.0	65.9	58.9	60.7	63.1	49.6	52.2	56.4	59.7	54.7	57.0	51.5	50.0	44.4	59.1	
(3)	Seriously isolated	11.0	8.2	7.7	8.5	15.4	7.7	10.1	9.1	13.4	10.9	8.6	15.2	3.6	0.0	9.5	
(4)	Almost completely isolated	1.5	0.5	1.4	0.9	3.1	1.7	0.0	0.0	1.5	6.3	0.0	3.0	3.6	0.0	1.5	
	N =	200	182	207	117	65	117	65	55	67	64	93	33	28	9	1,302	
	IV.3: Frequency of Information Exchange																
(1)	Several times daily	9.5	15.3	28.5	35.6	36.9	48.7	43.5	41.8	10.3	17.2	1.0	3.0	11.5	40.0	23.6	
(2)	At least daily	20.5	38.8	37.2	28.8	36.9	36.8	26.1	38.2	44.1	25.0	14.6	18.2	23.1	10.0	30.7	
(3)	At least weekly	50.5	31.7	26.1	26.3	21.5	9.4	20.3	14.5	33.8	46.9	35.4	51.5	46.2	50.0	31.4	
(4)	At least monthly	12.0	9.3	4.3	6.8	4.6	4.3	8.7	5.5	10.3	6.3	21.9	15.2	19.2	0.0	8.9	
(5)	Less often	7.5	4.9	3.9	2.5	0.0	0.9	1.4	0.0	1.5	4.7	27.1	12.1	0.0	0.0	5.4	
	N =	200	183	207	118	65	117	69	55	68	64	96	33	26	10	1,311	

TABLE VI.8 COMPARISON OF RATINGS OF AMOUNT OF INFORMATION AVAILABLE AND DEGREE OF ISOLATION FROM INFORMATION SOURCES FOR SCHOOL PRACTITIONERS AND LEA, ISA, AND SEA ADMINISTRATORS

QUESTION I.3: Amount of Information Available		QUESTION IV.2: Isolation from Information Sources	
	%		%
Very adequate	26.2	Not isolated	28.4
Somewhat adequate	56.3	Somewhat isolated	61.0
Somewhat inadequate	14.0	Seriously isolated	9.5
Very inadequate	3.5	Almost completely isolated	1.3

E. FREQUENCY OF INFORMATION EXCHANGE

This section of the questionnaire was concluded with the question: "How often do educators come to you for information, or do you pass information on to others relating to educational matters?"* Data on this question (Question IV.3) is reported in the lower portion of the first table in Section D. The chi square test indicates that there are highly significant differences among the 14 subaudiences in their reported frequencies of information exchange. Generally, administrators (including higher education chief administrators and institutional researchers) report the highest frequencies. Nearly 86 percent of the SEA administrators and 80 percent of the institutional researchers exchange information at least daily or more often. By contrast, only 16 percent of the local school board members and 21 percent of the state school board members report this high a frequency of education-related information exchange.

Among the practitioners, there are statistically significant differences between all three pairs of subaudiences, with frequency of exchange highest for "other" staff, intermediate for school principals, and least for teachers.

Among the administrators, the rate of information exchange is significantly higher for SEA than for LEA staff, but there is no difference between ISA and LEA staff.

Among the higher education audiences, the administrators (chiefs and institutional researchers) show significantly and markedly higher frequencies of information exchange than do the educational faculty and the social scientists.

Among the governance audience, legislators and aides engage in significantly more frequent exchange than do school board members.

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* The field interview study investigated frequency, numbers, and types of persons who came to users or to whom users passed information. These data indicate that the majority of educational information users are heavily engaged in the exchange of information with a wide variety of types of persons.

CHAPTER VII

QUESTION V. ABOUT YOUR PURPOSES FOR SEEKING INFORMATION

A. OVERVIEW

The field interview schedule included a list of 19 purposes for seeking information. Based on factor analysis of these items, the mail survey list was reduced to nine items which respondents were asked to rate in terms of their need for information and their satisfaction with current sources of information with respect to these nine purposes.

> **V. ABOUT YOUR PURPOSES FOR SEEKING INFORMATION**
>
> Users need information for many different purposes. For each purpose listed below, please indicate your degree of need for, and your satisfaction with currently available sources of information by checking one of the boxes for need and one of the boxes for satisfaction associated with each purpose.

Need for Information. The rated levels of need for information among the 14 subaudiences are statistically significant for eight of the nine purposes. Overall, the purpose which shows the greatest need for information is keeping aware of developments and activities in education. The second most important need for information is with respect to finding specific answers to questions arising in relation to the respondents' work. The majority of the subaudiences indicate that they have great need for information for these purposes. By contrast, most subaudiences have only moderate or small need for information in order to prepare reports, articles, or speeches.

Satisfaction with Current Sources of Information. Satisfaction regarding each of the nine listed needs is typically between "satisfactory" and "partly satisfactory." There are few differences among the 14 subaudiences in their average ratings of satisfaction with current sources of information for any of the nine purposes. Greatest satisfaction is indicated for keeping aware of developments and activities, and least satisfaction is indicated for evaluating educational practices or products.

Because the nine purposes were selected as relatively independent factor "marker" variables, the intercorrelations among ratings of need for information are relatively low (r = .08 to .38). The intercorrelations for satisfaction with current sources of information are substantially larger (r = .30 to .53). Factor analysis suggests that there is a "general" satisfaction factor which also has a significant loading on Question IV.2 (isolation from information sources).

B. NEED FOR INFORMATION

Need for information with respect to each of the nine purposes was rated on a three-point scale (1 = Great, 2 = Moderate, 3 = Small). With the exception of one item, there are statistically significant differences among the 14 subaudiences in their average rated need for information for all purposes. Despite these differences there were some strong similarities in the general patterns of needs across most subaudiences.

Keeping aware of developments and activities in education is the purpose for which virtually every audience (except federal legislative aides) expresses great need. This purpose is either the first or second highest ranking in need for information for all other subaudiences.

Finding answers to specific questions is the second highest need overall. This is the highest ranking need for federal legislative aides (1.10) and institutional researchers (1.22). Relative to other purposes, the practitioners and state board members tend to rate this purpose lower (fourth or fifth rank among the nine purposes).

Identifying new sources of assistance for improving my work is relatively important for all audiences except those concerned with governance.

Developing alternative approaches to solving problems in my work is the one purpose where there is no significant difference in the chi square test across the 14 subaudiences.

The next three purposes have identical equal weight averages for the total sample (1.74), however, there are significant differences among the subaudiences in their relative need for information.

Identifying new educational programs, materials, methods, or procedures is especially important to "practice-oriented" subaudiences. This purpose is the second or third highest need for all practitioner subaudiences, for educational faculty, and for LEA and ISA administrators. However, it is the lowest-ranking need for legislators and aides and for institutional researchers, and is sixth- or seventh-ranking for SEA administrators, higher education chief administrators, and local school board members.

TABLE VII.1 QUESTION V. ABOUT YOUR PURPOSES FOR SEEKING INFORMATION - NEED

Users need information for many different purposes. For each purpose listed below, please indicate your degree of need for, and your satisfaction with currently available sources of information by checking one of the boxes for need and one of the boxes for satisfaction associated with each purpose.

1 = Great
2 = Moderate
3 = Small

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				EQUAL WT AVRG.	Chi Square P-Level
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.		
	PURPOSE To help me to:																
(1)	Keep aware of developments and activities in education	1.42	1.27	1.40	1.26	1.17	1.42	1.25	1.46	1.28	1.22	1.56	1.18	1.23	1.70	1.34	***
(2)	Keep aware of who is knowledgeable in a subject or problem area	1.88	1.83	1.80	1.64	1.62	1.60	1.60	1.66	1.74	1.80	1.86	1.85	1.52	1.90	1.74	*
(3)	Identify new sources of assistance for improving my work	1.51	1.58	1.46	1.55	1.48	1.58	1.54	1.56	1.60	1.49	1.81	1.88	1.82	1.70	1.61	**
(4)	Identify new educational programs, materials, methods, or procedures	1.50	1.51	1.52	1.53	1.44	1.70	1.56	2.02	1.68	1.38	2.00	1.85	2.24	2.40	1.74	***
(5)	Evaluate educational practices or products	1.88	1.61	1.88	1.70	1.62	1.71	1.50	1.85	1.78	1.83	1.73	1.44	1.96	1.80	1.74	***
(6)	Develop alternative approaches to solving problems arising in my work	1.65	1.54	1.59	1.56	1.54	1.52	1.48	1.56	1.68	1.67	1.78	1.52	1.59	1.90	1.61	NS
(7)	Find answers to specific questions arising in relation to my work	1.71	1.59	1.58	1.43	1.43	1.39	1.37	1.22	1.56	1.49	1.64	1.59	1.35	1.10	1.46	***
(8)	Locate information to provide to others	2.16	1.86	1.61	1.62	1.51	1.48	1.91	1.53	1.79	1.81	2.08	2.09	1.58	1.60	1.76	***
(9)	Prepare reports, articles, or speeches	2.65	2.30	2.34	1.84	2.14	1.85	1.96	1.65	1.75	2.08	2.63	2.15	2.08	1.80	2.07	***
	N ≥	200	183	208	116	63	115	67	54	67	63	89	33	25	10		

Keeping aware of who is knowledgeable in a subject or problem area displays a barely significant difference (P<.05, which might wash out with a more exact test), and aside from state legislators who rate this purpose 1.52 (third-ranking among the nine purposes), the remainder of the ratings for need are in a narrow range (1.60 - 1.90). For most subaudiences this purpose is sixth or seventh among the ranking of the nine purposes.

Evaluating educational practices or products displays a larger range (1.44 - 1.96). Relative to the other eight purposes, evaluating practices or products is second-ranking for state school boards, third-ranking for local boards, and fourth-ranking for chief administrators. This purpose is sixth- to eighth-ranking for all other subaudiences.

Locating information to provide to others is a very low-ranking (sixth to ninth rank) purpose for most subaudiences, but it ranks second or third among the nine purposes for SEA administrators, institutional researchers, and federal legislative aides; fourth for state legislators; and fifth for ISA administrators.

Preparing reports, articles, or speeches is the purpose for which most subaudiences have least need. With the sole exception of federal legislative aides (1.60), where this purpose is tied for second place (with locating information to provide to others), none of the other audiences rate this purpose higher than seventh among the nine purposes, and ten of the 14 subaudiences assign it the lowest rating of all nine purposes for seeking information.

C. SATISFACTION WITH CURRENT SOURCES

The same nine purposes were rated in terms of satisfaction (1 = Satisfactory, 2 = Partly Satisfactory, 3 = Unsatisfactory). In this case, only two of the nine items display significant differences across the 14 subaudiences, and both are so marginally significant that the differences might not stand if more exact tests were made. Overall, greatest satisfaction is indicated (1.58) for keeping aware of developments and activities in education (this is also the purpose with greatest overall need for information). Next highest satisfaction with current sources of information (1.68) is for preparing reports, articles, and speeches (but this is the purpose with least overall need for information). Third in overall rated level of satisfaction is locating information to provide to others (1.71), and fourth is finding answers to specific questions (1.74). From this point on, the rating averages are closer to the "partly satisfactory" category: sixth is identifying new educational programs, materials, methods, or procedures (1.77); seventh is identifying new sources of assistance for improving my work (1.88); eighth is developing alternative approaches to solving problems arising in my work (1.94); and last is evaluating educational practices or products (1.96).

TABLE VII.2 QUESTION V. ABOUT YOUR PURPOSES FOR SEEKING INFORMATION - SATISFACTION

Users need information for many different purposes. For each purpose listed below, please indicate your degree of need for, and your satisfaction with currently available sources of information by checking one of the boxes for need and one of the boxes for satisfaction associated with each purpose.

1 = Satisfactory
2 = Partly Satisfactory
3 = Unsatisfactory

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE					
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	EQUAL WT AVRG.	Chi Square P-Level
	PURPOSE																
	To help me to:																
(1)	Keep aware of developments and activities in education	1.55	1.60	1.56	1.58	1.66	1.62	1.54	1.47	1.66	1.62	1.45	1.58	1.62	1.60	1.58	NS
(2)	Keep aware of who is knowledgeable in a subject or problem area	1.74	1.80	1.76	1.74	1.95	1.86	1.81	1.82	1.84	1.75	1.62	1.67	1.59	1.50	1.75	NS
(3)	Identify new sources of assistance for improving my work	1.80	1.87	1.82	1.78	2.12	1.91	1.99	1.84	2.05	1.84	1.75	1.81	1.77	2.00	1.88	*
(4)	Identify new educational programs, materials, methods, or procedures	1.74	1.75	1.73	1.74	1.94	1.81	1.85	1.69	1.82	1.86	1.64	1.62	1.73	1.90	1.77	NS
(5)	Evaluate educational practices or products	1.92	1.92	2.00	1.86	2.02	1.88	2.09	1.98	1.83	1.88	1.76	2.03	1.93	2.30	1.96	NS
(6)	Develop alternative approaches to solving problems arising in my work	1.87	1.97	1.92	1.89	2.03	1.97	2.16	1.87	1.94	1.94	1.69	2.12	1.92	1.80	1.94	NS
(7)	Find answers to specific questions arizing in relation to my work	1.76	1.85	1.72	1.66	1.75	1.76	1.82	1.86	1.80	1.75	1.63	1.70	1.67	1.70	1.74	NS
(8)	Locate information to provide to others	1.74	1.81	1.73	1.64	1.80	1.71	1.74	1.82	1.76	1.84	1.57	1.81	1.60	1.43	1.71	NS
(9)	Prepare reports, articles, or speeches	1.71	1.81	1.74	1.67	1.73	1.67	1.71	1.51	1.68	1.57	1.49	1.67	1.60	1.80	1.68	*
	(Locate information to provide to others) N =	142	127	162	83	46	91	51	38	55	63	68	16	20	7		
	(All other purposes) N ≥	201	178	198	116	65	112	68	53	66	51	84	32	25	10		

D. PATTERNS OF RELATIONSHIPS AMONG RATINGS OF NEED FOR INFORMATION AND SATISTACTION WITH CURRENT SOURCES OF INFORMATION

The following table displays the correlations among the ratings of need for information and satisfaction with current sources of information for each of the nine purposes for seeking information. The correlations with ratings of isolation from sources (Question IV.2) are also listed. (Note, the scales for satisfaction and isolation have been reversed to reduce the number of negative correlations). Since the need and satisfaction ratings are each based on three-point scales, the reported correlations are attenuated due to coarse grouping of the three-point scale categories.*

Although the correlations among the ratings of need for information are all positive and statistically significant, most are of modest size ranging from .08 to .38 (if corrected for coarse grouping, the range is .11 to .52). Among the higher correlations are the following: Those who have a need to keep aware of developments and activities also tend to need information about who is knowledgeable in a subject or problem area and for information to identify new programs, materials, methods, or procedures. Those who have a need for information to develop alternative approaches to solving problems arising in their work also tend to need information to find answers to specific problems arising in their work. Those who need information to find answers in their own work also tend to need to locate information to provide to others. Those who need information to provide to others also tend to need information to prepare reports, articles, and speeches.

Among the lowest correlations are the relations between need for information to identify new programs, materials, methods, or procedures and the need for information to find answers to specific questions or to prepare reports, articles, or speeches.

The intercorrelations among the ratings of satisfaction with current sources of information are substantially higher than the ratings for need, with correlations

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* The Peters and Van Voorhis correction would increase the reported values by approximately 1.36. Correlations with the four-point isolation scale would be increased by a factor of 1.27.

TABLE VII.3 CORRELATIONS BETWEEN RATINGS OF NEED FOR INFORMATION AND SATISFACTION WITH SOURCES OF INFORMATION FOR NINE PURPOSES FOR SEEKING INFORMATION

(Note, satisfaction and isolation scales have been reversed to avoid negative correlations; decimals omitted.)

	Variables	Variables																		
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Need -Awareness Development	01	-	34	27	38	26	25	19	21	17	05	08	01	06	06	07	10	10	09	01
Need -Who Is Knowledgeable	02	34	-	29	15	20	23	22	21	25	04	08	06	04	06	04	03	03	05	00
Need -Identify New Sources Of Assistance	03	27	29	-	32	19	36	18	19	15	13	18	18	12	13	16	18	13	13	-12
Need -Identify New Programs, Etc.	04	38	15	32	-	30	19	09	14	08	07	07	03	09	03	05	08	08	09	-07
Need -Evaluate Practices..	05	26	20	19	30	-	24	12	16	17	07	07	09	09	16	10	08	05	05	-04
Need -Develop Alternatives	06	25	23	36	19	24	-	38	20	16	08	12	13	10	06	17	13	07	10	-04
Need -Find Answers	07	19	22	18	09	12	38	-	36	26	03	04	06	07	02	05	07	05	01	-02
Need -Locate Information	08	21	21	19	14	16	20	36	-	35	03	07	02	02	-02	02	02	00	02	-03
Need -Prepare Reports, Articles	09	17	25	15	08	17	16	26	35	-	03	06	04	05	01	01	03	-01	00	02
Satisfaction -Awareness Development	10	05	04	13	07	07	08	03	03	03	-	53	46	45	34	38	31	31	30	39
Satisfaction -Who Is Knowledgeable	11	08	08	18	07	07	12	04	07	06	53	-	50	39	37	39	39	38	37	31
Satisfaction -Identify New Sources Of Assistance	12	01	06	18	03	09	13	06	02	04	46	50	-	52	39	50	42	36	32	35
Satisfaction -Identify New Programs, Etc.	13	06	04	12	09	09	10	07	02	05	45	39	52	-	45	39	35	37	33	32
Satisfaction -Evaluate Practices..	14	06	06	13	03	16	06	02	-02	01	34	37	39	45	-	45	35	33	34	27
Satisfaction -Develop Alternatives	15	07	04	16	05	10	17	05	02	01	38	39	50	39	45	-	51	36	35	32
Satisfaction -Find Answers	16	10	03	18	08	08	13	07	02	03	31	39	42	35	35	51	-	47	41	32
Satisfaction -Locate Information	17	10	03	13	08	05	07	05	00	-01	31	38	36	37	33	36	47	-	50	29
Satisfaction -Prepare Reports, Articles	18	09	06	13	09	05	10	01	02	00	30	37	32	33	34	35	41	50	-	27
Isolation From Sources	19	01	00	-12	-07	-04	-04	-02	-03	02	39	31	35	32	27	32	32	29	27	-

ranging from .30 to .53 (corrected for coarse grouping from .40 to .72). The ratings of (non)isolation from sources are also substantially correlated with all the satisfaction ratings (.27 to .39; corrected, .37 to .53). Factor analysis of these ratings (not reported) indicates that one factor will account for much of the intercorrelation among the satisfaction ratings. The "isolation from sources of information" variable (Question IV.2) also displays a substantial loading on this general satisfaction factor.

Note finally, there are no strong correlations between ratings of need and ratings of satisfaction. The correlations range from -.02 to .18. (The highest correlation, .18, indicates that those who most need information to identify new sources of assistance tend to be least satisfied with sources of information for identifying who is knowledgeable, for identifying new sources, and for finding answers; however, none of these relationships, even when corrected for coarse grouping, account for more than six percent of the covariation.)

E. SUMMARY

Need for information varies markedly by type of user and purpose for seeking information, with subaudience averages ranging from 1.17 (great need) for information to keep aware of developments and activities in education among ISA administrators to 2.65 (small need) for information to prepare reports, articles, or speeches among school teachers. Significant differences among subaudience averages were found for eight of the nine purposes listed in the questionnaire. Because the items were selected to represent different kinds of needs, the intercorrelations among the ratings are not strong, but all are positive and significantly different from zero. Some needs for information are more closely related to each other than are others.

Satisfaction with current sources of information appears to be a more unitary condition that is more highly correlated among purposes, varies less from purpose to purpose, and exhibits smaller differences among subaudiences. Satisfaction with current sources of information for different purposes is also significantly related to ratings of (non)isolation from information sources users would like to have available to them.

CHAPTER VIII

QUESTION VI. ABOUT YOUR PROBLEMS IN ACQUIRING AND USING EDUCATIONAL INFORMATION

A. PROBLEMS IDENTIFIED IN THE MAIL SURVEY

Although the field interviews with key persons in education had provided information about problems users encountered, their problems had been so diverse in character and based on such small samples that we lacked confidence in our ability to create an effective structured set of responses for this area of investigation. Consequently, the key questions in this area were open-ended.

> VI. ABOUT YOUR PROBLEMS IN ACQUIRING AND USING EDUCATIONAL INFORMATION
>
> With respect to all the tasks you have worked on over the last year, did you have any unusually serious difficulty locating, obtaining or using information which you critically needed in your work in education? (If your answer is "no," proceed to Question VII; if your answer is "yes," please answer the following two questions.
>
> 1. Would you explain the difficulty?
> 2. Can you offer a possible solution to the problem?

The response rates for this write-in question were low, ranging from 10 percent for teachers to 40 percent for federal legislative aides, with an overall average of 17 percent. Generally the practitioners were least ready to identify problems, while federal legislative aides and institutional researchers were most ready. A total of 224 responses were made. These were analyzed for content and then classified into the several categories listed in the following table. Overall, 75 percent of the problems dealt with difficulties with information sources, 15 percent were associated with problems in user capacity to find information, and 10 percent were unclassifiable.

Information Base. Among the problems concerned with information sources, 30 percent of all problems dealt with information collection: 13 percent indicated

TABLE VIII.1 TYPES OF PROBLEMS IDENTIFIED BY SUBAUDIENCES IN ACQUIRING AND USING EDUCATIONAL INFORMATION

QUESTION VI. ABOUT YOUR PROBLEMS IN ACQUIRING AND USING EDUCATIONAL INFORMATION

With respect to all the tasks you have worked on over the last year, did you have any unusually serious difficulty locating, obtaining, or using information which you critically needed in your work in education?

1. Would you explain the difficulty? 2. Can you offer a possible solution to the problem?

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE					
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	TOTAL	% OF RESPONSES
	DIFFICULTIES WITH INFORMATION															(167)	(75)
1.	Information Collection															(68)	(30)
	a. Information is scarce or does not exist	1	4	3	5	1	7	0	2	0	3	2	2	0	0	30	13
	b. Inadequate character	3	0	1	5	3	5	1	10	0	1	2	2	1	4	38	17
2.	Information Organization, Analysis, Retrieval															(55)	(25)
	a. Insufficient indexing or cataloging; not retrievable	2	2	2	1	2	2	0	1	7	3	1	0	0	0	23	10
	b. Not adequately summarized, organized, synthesized, or analyzed	4	2	1	4	1	6	3	1	4	1	2	0	3	0	32	14
3.	Access/Dissemination															(44)	(20)
	a. Not distributed widely or frequently	2	0	2	1	1	2	2	4	1	1	1	0	0	0	17	8
	b. Inaccessible locally	1	1	6	0	2	1	0	0	4	2	0	0	0	0	17	8
	c. Resistance or refusal	2	1	0	3	0	0	0	1	0	1	0	1	1	0	10	4
	DIFFICULTIES WITH USER															(34)	(15)
4.	Don't have money, time, qualified personnel to search	4	1	4	2	2	0	1	0	0	2	2	2	1	0	21	9
5.	Don't know where to look for information	1	2	3	0	0	4	0	0	0	1	2	0	0	0	13	6
6.	UNCLASSIFIABLE	1	5	6	0	2	2	2	1	1	0	3	0	0	0	(23)	(10)
	TOTAL RESPONSES	21	18	28	21	14	29	9	20	17	15	15	7	6	4	224	-
	Percent of Subaudience Sample	10.2	9.6	13.3	17.6	21.5	24.8	13.0	36.4	10.3	23.4	15.5	20.6	21.4	40.0	16.9	-

that their primary problem was that the kind of information they sought was scarce or non-existent (e.g., a new area of policy has not been developed); 17 percent indicated that although information existed, it was inadequate for their purpose, e.g., not up-to-date, of low quality, or unreliable. Some complained that they would need more direct contact with the original sources (e.g., talk to teachers) to check on details.

Organization, Analysis, Retrieval. Some 25 percent of all problems dealt with information organization, analysis, or retrieval: ten percent indicated that their primary problem was that the information they sought was inadequately indexed, cataloged, or otherwise not retrievable (these users called for more listings in ERIC, better catalogs, or reference lists); 14 percent indicated that their major problem was that the information they needed was not adequately summarized, organized, synthesized, or analyzed in useful ways (several of these complaints referred to the unrelated mass of educational information; they called for ways of centrally locating related information so that users would have to go to fewer sources to find what they wanted, and for ways of organizing information around user-oriented themes, topics, or problems).

Access and Dissemination. Twenty percent of the problems were classified into one of three areas under this heading: eight percent indicated that useful or vital information is not distributed widely or frequently (newsletters were suggested as useful solutions for this type of problem); another eight percent complained that the information was inaccessible locally, that although it existed, it was located too far from the user or was not easily deliverable where and when the user needed it; another four percent (ten respondents) cited instances where there had been resistance, lack of cooperation, slowness in giving information, or outright refusal to supply information.

Difficulties with User Capacity. The 15 percent of the problems classified in this area fall into two major categories: nine percent of the problems were concerned with the fact that the user didn't have funds, time, or qualified personnel to search for needed information, six percent complained that they didn't know where to look for (unusual) information they needed.

Generally, the frequencies for the cross tabulations of subaudiences by type of problem are too small to attach any reliable significance to individual cell entries. However, we note the following: school principals, LEA, and SEA administrators are somewhat more prone to complain about scarce or non-existent information. Ten of the 20 difficulties mentioned by institutional researchers dealt with the problem of the inadequate character of information and data they needed. This is also the only complaint of federal legislative aides. Social scientists are more prone than others to identify indexing, cataloging, and retrieval problems. Several of the subaudiences (e.g., teachers, LEA and SEA administrators, higher education chief administrators, and state legislators) are somewhat concerned about analysis and summarization. Distribution is a special complaint of institutional researchers. Lack of local access is a problem especially for "other" school staff and for social scientists. Teachers and other staff are slightly more prone to complain of lack of time, funds, or personnel to search for information, while SEA and "other" school staff also are slightly more prone to identify difficulties in knowing where to look for information.

B. COMPARISON WITH THE FIELD SURVEY OF USERS

In the field interviews, users were asked to relate an incident where they were unsuccessful in finding the information they needed. Even in this direct face-to-face interview situation, only 42 percent gave an answer (compared to 17% in the mail survey). Volume I reports the far more detailed analysis of the series of questions and probes which were used in the analysis of those "unsuccessful critical incidents." In the following table, we briefly summarize some comparable categories.

The two sets of data were independently analyzed; consequently, the categories are not quite the same. Moreover, the more detailed incidents related in the field interviews lead to multiple categorization, while virtually all of the difficulties described in the mail survey dealt with only one type of problem; so the problem categories are mutually exclusive. After adjusting the field interview data to also equal 100 percent, we note that the two sets of data are roughly comparable. The major difference is that a larger percentage of the field interviewees indicated that they didn't know how to find the information they were searching for (18% versus 6%).

TABLE VIII.2 COMPARISON OF MAIL AND FIELD INTERVIEW DATA REGARDING PROBLEMS IN OBTAINING INFORMATION

	Field Interviews (N = 58)		Mail Survey (N = 224) (Mutually Exclusive)		Difference
	Raw %*	Adjusted to 100%*	Raw %		
Believed the information they sought didn't exist..................	21%	15%	13%		2%
Didn't know how to find it...........	26%	18%	6%		12%
Complained of inadequate retrieval capability...........................	14%	10%	10%		0%
Complained information was withheld............................	9%	6%	4%		2%
Said the information they obtained was not useful.......................	38%	26%	17%		
(not adequately analyzed, summarized, etc.)...............	-	-	14%	31%	5%
Said further search was not feasible..	36%	25%	-		
(information is not distributed widely)............	-	-	8%		
(information is inaccessible locally)......................	-	-	8%	25%	0%
(don't have money, time, or personnel to search)...........	-	-	9%		

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* Field survey categories are not mutually exclusive; adjusted percentages total 100% to afford more direct comparison with the mutually exclusive categories of the mail survey.

CHAPTER IX

QUESTION VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO

A. INTRODUCTION

The field interview study had indicated that educational information users turn to a wide variety of persons and organizations in their search for information, and that users tend to follow fairly regular patterns in the sequence of sources they use. This section of the mail questionnaire was designed to identify the sequence of use of the more typical types of persons or organizations users turn to when they seek advice or information in their work.

VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you _typically_ seek advice or information in your work?

   Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a _typical_ sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

2. The sequence of human and organizational sources I have indicated above is (check one box):

   a. very typical of the order I use;
   b. somewhat similar to the order I use;
   c. I responded in terms of a recent incident.

A list of 16 items including eight types of persons and eight types of organizations was presented. The lists were tailored to different audiences on the six forms (A, B, E, H, L, P); however, there were approximately 13 items which were equivalent across forms. Statistically significant differences among the 14 subaudiences were found for all 13 items, thus demonstrating that the subaudiences differ in their tendency to seek advice from various types of persons and organizations.

The majority of the respondents stated that the sequence of human and organizational sources they had identified was either very typical or somewhat typical of the order they use in seeking advice or information.

B. SEQUENCE OF PEOPLE AND ORGANIZATIONS

Although the 16 items appearing on each of the six questionnaire forms were tailored to individual audiences, there were 13 items which were essentially equivalent across the six forms.* To simplify comparison and reporting, the following table displays data based on these 13 items. (In the following section data are presented on the percentage of each subaudience who marked the 16 items on their specific form as the first, second, or third source they would usually turn to.)

We first note that the instructions asked respondents to number the 16 types of sources in the order in which they would typically seek advice or information.

In effect, the items were ranked 1, 2, 3, etc. "for as many sources as you typically use."

Ranks were converted to single-digit scores by assigning the top pair of ranks a score of 8, the second pair of ranks a score of 7, etc. Unranked items were assigned a score roughly equivalent to the tied rank for all non-ranked items.**

The significance levels (based on one-way analysis of variance) indicate that all 13 items are significant beyond the .001 level. The scores in this table may be translated to average ranks by doubling the tabled value. For

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* In the following table no data (n.d.) are available for teachers, and in the case of local and state school board members the score for libraries (organizations) has been used in place of missing data for information service personnel. The items were derived from content analysis of the field interviews. Initially, a uniform list was developed, but it proved to be too long and involved many items that would not be meaningful to some subaudiences. Since work activities had already been tailored to the six forms, it was decided to also tailor this section of the questionnaire.

** The score for unranked items was set at 6 if number of items ranked (NR) was 1 or 0; 5 if NR was 3 or 4; 4 if NR was 5 or 6; 3 if NR was 7 or 8; 2 if NR was 9 or 10; and 1 if NR was greater than 10.

TABLE IX.1 QUESTION VII.1 ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO

Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you *typically* seek advice or information in your work?

(Note, originally, 16 items were ranked--only the 13 which are common over all groups are reported here.)

Scores 1.00 to 8.00
Originally, 16 items were ranked
Top pair scored 8.0
Next pair scored 7.0
Last pair scored 1.0
Unranked items assigned tied values

	PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE					
QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.	TOTAL	P-Level
PERSONS																
Subordinates	n.d.	6.43	6.45	5.98	5.65	5.59	6.68	5.05	5.15	4.30	6.11	5.29	5.89	5.30	5.63	***
Peers	7.54	7.19	6.61	7.05	7.06	7.14	6.90	6.65	7.06	6.95	7.24	6.77	5.44	7.20	7.03	***
Superiors, constituents	6.53	7.17	6.28	6.26	6.43	6.53	4.28	3.85	4.37	5.03	5.52	5.97	5.33	4.20	6.01	***
Colleagues in other organizations	5.40	5.49	5.98	6.37	6.74	6.11	6.54	6.13	5.84	5.23	5.25	3.84	5.33	4.40	5.77	***
Experts	5.72	5.68	6.01	6.49	5.83	6.34	5.41	5.40	5.71	5.98	5.88	6.16	6.15	5.20	5.90	***
Information service personnel	5.75	4.80	5.49	4.57	4.49	5.12	4.29	4.45	5.35	5.25	4.62	4.16	5.85	5.30	5.06	***
Other people	3.60	3.14	4.08	3.17	3.38	3.64	3.01	3.36	3.91	3.84	4.10	3.97	3.30	2.90	3.58	***
ORGANIZATIONS																
Library	6.25	4.70	5.01	4.69	4.68	4.87	5.06	5.75	6.62	6.64	4.62	4.16	4.15	7.00	5.24	***
State department of education	4.64	5.42	4.80	6.00	6.58	4.85	4.75	4.58	4.53	5.13	4.28	6.74	7.41	5.40	5.21	***
Professional organizations	4.55	5.03	4.43	5.03	4.72	4.80	4.16	4.76	4.82	5.33	4.95	6.13	6.22	4.50	4.81	***
Federal educational agencies	3.97	3.53	3.78	4.12	4.00	4.91	4.16	4.72	4.59	4.57	4.19	4.36	3.89	6.80	4.12	***
National information services	3.97	3.70	3.79	4.07	4.31	4.70	3.93	4.33	5.72	5.10	4.17	3.84	3.85	3.60	4.16	***
Other organizations or agencies	3.46	2.78	3.66	3.35	3.33	3.72	3.50	3.32	3.25	3.97	4.07	4.03	3.33	3.40	3.32	***
N =	203	181	204	119	65	116	69	55	68	61	95	31	27	10	1304	

instance, no data (n.d.) are available for the teacher subaudience on "subordinates," but the score for peers (teachers in my own district) is 7.54, which doubled is 15.08, indicating that teachers averaged 15 for the 1 to 16 rank distribution.

Note that 16 in the reversed scale is equal to the first rank; hence 15 is equal to the second rank, etc. To achieve an average rank score this high, the majority of the teachers would have had to mark peers (teachers in my own district) as one of the first few sources they turned to.*

Since our interest in this section of the questionnaire focused on the sequence of use of different sources, the average scores for the 13 sources listed in this table were in turn rank ordered within each subaudience. The next table in this section displays those rank orders.

The following discussion is based primarily on the rank data presented in this second table, but may refer to the averages reported in the previous table also.

Note that the items in this table have been rearranged in terms of the overall (total) rank order. Generally, peers are the first source which educational information users turn to; next they may turn to superiors (or constituents, in the case of elected officials); third in overall order are experts; fourth are colleagues in other organizations; fifth, subordinates; and sixth, for those who would persevere that far, is the library. With the exception of a few subaudiences that are noted below, only minorities of the subaudiences bothered to rank many of the remaining sources. However, the differences in the proportions of subaudiences who did rank the remaining sources and in the ranks assigned are large enough to produce statistically significant differences among subaudiences on each source and to give us a general indication of the rank of the remaining items. Overall, the remaining sources are in this order: seventh, state departments of education; eighth, information service personnel; ninth, professional organizations; tenth, national information services; eleventh, federal education agencies; twelfth, other people, and thirteenth, other organizations.

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* In the next section we discover that 39 percent of the teachers marked this item as the first source they would turn to, another 19 percent marked it as the second source, and another 12 percent marked it as the third source; thus, a total of 70 percent of the teacher respondents turn to their peers at early stages in their search for information.

Each subaudience column may be examined to determine the sequential order that characterizes the average response for that subaudience. For instance, we note that teachers tend to turn first to peers (fellow teachers) and then to superiors (their school principal). However, experts, which are third overall, are the fifth source for teachers. Scanning down the list we find that libraries (sixth overall) are the third source for teachers, and that librarians and information service personnel (eighth overall) are the fourth source for teachers. Teachers are most different from other practitioners (i.e., principals and "other" staff) in their tendency to turn much sooner than other practitioners to the library and to librarians as sources of information. (Use of subordinates may also be an area of difference, but there is no type of person on the practitioner questionnaire form which could be designated as a subordinate for teachers.)* Other columns of the table may be read and compared in the same fashion. We leave this to the reader and turn now to comment in terms of differences among subaudiences (row-wise) for each source.

Peers. Virtually all subaudiences (except state legislators) identify peers as the source they turn to first when they seek advice or information in their work. The highly significant statistical difference among the fourteen subaudiences on this item is due to the relative differences in the numbers of persons in each subaudience which rated this category (peers) first, second, or perhaps lower.

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* The rank of (11) entered in the table is the rank educational faculty assigned to graduate students. Our weak assumption is that elementary and secondary teachers would not go to assistants (or students for professional information any sooner than would college of education faculty. This assumption may not be tenable, but it serves to supply a plausible value that keeps the number of objects ranked equal to those of other subaudiences.

TABLE IX.2 QUESTION VII.1 PERSONS AND ORGANIZATIONS YOU TURN TO

Rank Ordered by Average Rank Scores Within Each Subaudience

	PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				
QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S BD.	S.LEG.	F.LEG.	TOTAL
Peers	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1
Superiors, Constituents	2	2	3	4	4	2	8	11	11	9	4	5	7.5	10	2
Experts	5	4	4	2	5	3	4	4	5	3	3	3	3	7	3
Colleagues in other organizations	6	5	5	3	2	4	3	2	3	5	5	12.5	7.5	9	4
Subordinates	(11)*	3	2	6	6	5	2	5	7	11	2	6	4	5.5	5
Library	3	9	7	8	8	8	5	3	2	2	7.5	8.5	9	2	6
State Department of Education	8	6	8	5	3	9	6	8	10	7	9	2	1	4	7
Information service personnel	4	8	6	9	9	6	7	9	6	6	7.5	8.5	5	5.5	8
Professional organizations	7	7	9	7	7	10	9.5	6	8	4	6	4	2	8	9
National information services	9.5	10	11	11	10	11	11	10	4	8	11	12.5	11	11	10
Federal educational agencies	9.5	11	12	10	11	7	9.5	7	9	10	10	7	10	3	11
Other people	12	12	10	13	12	13	13	12	12	13	12	11	13	13	12
Other organizations	13	13	13	12	13	12	12	13	13	12	13	10	12	12	13

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*No data; ranked same as ranking of educational faculty

Superiors, Constituents. Although this category of sources is second highest overall, there are substantial differences among subaudiences which may be in part due to the different definitions that had to be used. Practitioners tend to turn to their superiors as the second or third source. Superiors are also the second source for SEA staff; however, superiors are the fourth source for LEA and ISA staff. In the instance of higher education chief administrators, "superiors" were considered to be governing board members (e.g., regents, trustees). Chief administrators ranked these superiors eighth (among the 13 common sources). "Superiors" for the three other higher education subaudiences were defined as line administrators. All three subaudiences rarely turn to these line administrator superiors: for education faculty they rate ninth among the 13 sources; for social scientists and institutional researchers they rate eleventh among the 13 common sources.

Experts. Overall, this is the third most popular information source. Experts are second only to peers as a source for LEA staff, they are third (among the 13 common items) for SEA staff, educational faculty, local boards, state boards, and state legislators. Federal legislative aides place the least emphasis on experts, with a rank of seventh among the 13 common items.

Colleagues in Other Organizations. Fourth overall, colleagues in other organizations are the second source (after peers) for ISA staff and for institutional researchers, and the third source for LEA staff, higher education chief administrators, and social scientists. However, except for local board members, colleagues in other organizations are not a popular source for governance subaudiences and are as rarely used by state school board members as any source listed (tied for last source with use of national information services).

Subordinates. This class of sources is fifth-ranking, overall. Subordinates are the second source for school principals, "other" practitioner staff, and local school boards--for all these groups subordinates imply school teachers (or other school staff). Note, there is no data (n.d.) for the teacher subaudience. Only one subaudience, educational faculty, displays an especially low score; in this case, the subordinates are graduate students, who are eleventh in rank among the 13 sources. Note, social scientists' use of graduate students as information sources is slightly higher, ranking seventh among the 13 types of sources.

Libraries. This is the first organizational, as opposed to personal source on the list of common sources. It is sixth in rank overall. Libraries are especially valued by federal legislative aides (i.e., the Library of Congress), educational faculty, and social scientists. For all of these groups libraries are the second source they turn to (after peers). Libraries are the third source for institutional researchers and school teachers. Those who tend to turn to libraries infrequently (either ranked way down the list or not ranked at all) are state legislators, state school board members, all three of the administrator subaudiences (LEA, ISA, SEA), and school principals. For these groups libraries are eighth or ninth-ranked.

State Departments of Education. This source ranks seventh overall. It is the first source state legislators turn to, the second source (after peers) for state school board members, the third source of ISA staff, and the fourth source for federal legislative aides. While these subaudiences tend to turn to state departments fairly early in their search for information, other subaudiences place this source relatively late in their rankings (or substantial portions of the subaudience omit assigning a rank). These include: social scientists (10th-ranked), local school board members (9th-ranked), and SEA staff (9th-ranked). Note that the implied reference for the SEA subaudience is other state departments rather than their own organization.

Librarians or Information Services Personnel. This is the eighth source in overall rank, and it is the last of the specific personal sources. Among the subaudiences who tend to turn to librarians or information personnel sooner are: teachers (fourth in rank order), state legislators (fifth), and federal legislative aides (tied fifth, but note this tied rank is based on a tie with a score that is actually for use of the organization library, since there was no question regarding librarians or information services personnel). For both the social scientists and the educational faculty this is their sixth-ranking source (compared to the overall ranking of eighth). No subaudience tends to have a markedly low rank compared to the overall rank (8th); however, for LEA and ISA staff and for institutional researchers, this is their ninth-ranked source, just one rank below the overall rank order.

Professional Organizations. This source is relatively important for three subaudiences. State legislators indicate that it is typically the second source (after state departments of education) they turn to; for educational faculty and for state board members it is fourth in order (among the 13 common sources); for institutional researchers and local board members, it is sixth in rank. No subaudience ranks this source markedly below the overall ranking, however, SEA staff have the lowest rank (10th).

National Information Services. Generally this source was either not ranked or ranked well down the list by nearly all subaudiences with one notable exception. For social scientists, this source was fourth (after peers, the library, and colleagues in other organizations), but before "experts." For educational faculty this source is eighth. For all other groups its ranking is below ninth, and for state school board members it ties with "colleagues in other organizations" (i.e., other school boards) for last place among the 13 common sources.

Federal Educational Agencies. With an overall rank of eleventh, this source is third for federal aides. Note that federal educational agencies serve an information source role for federal aides that is similar in relative importance to the role played by state departments of education for state governance groups (legislators and board members). Two other subaudiences tend to place this source at least middlemost among the list of 13 sources: SEA staff and institutional researchers, perhaps because both of these groups turn to federal agencies for information about federal programs (e.g., for funding, regulations, or comparative national data).

Other People. This miscellaneous ("other, please specify") category ranks twelfth overall, with individual subaudiences ranking it between tenth and thirteenth. The statistically significant differences among subaudiences for this item (and the next one) largely reflect different, but low rates, of write-ins for different groups (e.g., the tenth rank for the "other" staff subaudience in part reflects the fact that a total of 11 percent of this subaudience specified some particular person or type of person whom they turned to as their first, second, or third source).

Other Organizations. Relatively few persons wrote in specific types of organizations not listed in the questionnaire. Indeed, no more than six percent of any subaudience specified other organizations as their first, second, or third source they would turn to. (The tenth rank for state board members is partly accounted for by the fact that just one respondent specified a specific organization as the first source he/she would turn to and one respondent specified an organization not on the list as the second source he/she would turn to.)

Summary. Although the above discussion has tended to accentuate differences among the several subaudiences, the rank ordering of the 13 common sources is perhaps more remarkable in terms of similarities than differences. Virtually all subaudiences turn first to peers and then to a variety of types of persons before turning to organizational sources. Superiors and constituents are relatively important for practitioners and administrators, but are of distinctly less importance for all higher education subaudiences. Experts are of some importance for nearly everyone, but are least valued by federal legislative aides (who may perhaps encounter more expert advice and testimony than any other subaudience), and by teachers, educational faculty, or social scientists. Colleagues are especially valued by nearly all higher education subaudiences and also by ISA and LEA staff. As we have noted, "subordinates" takes on different meanings for different subaudiences, but they are especially important for local boards (subordinates equal "teachers and other school staff"), "other" staff (subordinates equal "teachers"(?)), and higher education chief administrators (subordinates equal "staff").*

Aside from libraries and state departments of education, few organizational sources rank better than halfway for most subaudiences. But there are a few exceptions. Libraries are especially important for school teachers and most higher education subaudiences. State departments are of relatively great importance for ISA staff and all governance groups (except local school board members.) Professional organizations are relatively important for state legislators, state board members, and educational faculty. National information services are relatively important only for social scientists. Finally, federal agencies are of substantial importance as information sources for federal legislative aides.

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* If one may quibble with these arbitrary definitions of "subordinates," at least note that these "subordinates" are highly valued by these subaudiences as sources of information and assistance in finding needed information.

Aside from these major exceptions, most of the groups tend to display relatively high agreement (especially within subaudience) in the rank ordering of the 13 common sources.

C. FREQUENCY OF MENTION AS FIRST, SECOND, OR THIRD SOURCE

The previous section examined data for 13 common items based on average scores derived from (usually partial) rankings of the original sets of 16 items appearing on each of the six questionnaire forms. The following tables present the percentages of each subaudience who ranked an item first, second, or third. There is a separate table for each of the six forms of the questionnaire, with the item wording exactly as it appeared in the questionnaire. These tables are presented for reader inspection and will not be discussed further except for this brief comment on how to read the entries. Note, the data entries in the first table (Practitioners, Form P) are read as follows: 39 percent of teachers indicate that "teachers in my own district" is the first source they would turn to, another 19 percent indicate teachers are the second source they typically turn to, and another 12 percent indicate teachers are the third source. (Thus, 70% indicate that "teachers in my own district" are the first, second, or third source they would turn to.) The remaining entries in the six tables are read in the same way.

TABLE IX.3 QUESTION VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO (PRACTITIONERS, FORM P)

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

   Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

QUESTIONNAIRE ITEMS	TEACHERS			PRINCIPALS			OTHER STAFF		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
	%	%	%	%	%	%	%	%	%
teachers in my own district.........	39	19	12	10	14	22	18	14	16
principals in my own district	12	21	14	35	23	5	11	15	19
other personnel in my own district...	3	8	17	25	20	18	16	19	12
parents or members of the community..	0	2	5	1	3	6	0	2	6
colleagues in other organization....	2	4	10	2	4	11	7	10	10
experts or authorities on the subject	8	4	7	7	4	12	13	11	8
information service personnel (e.g., librarians, information specialists)......................	5	11	6	1	3	4	5	6	7
other people (please specify).......	2	2	0	4	0	0	8	2	1
school library......................	17	11	9	4	2	4	11	3	3
university or college library.......	5	4	6	0	4	4	3	7	2
university or college department....	2	3	4	0	4	3	2	2	3
state department of education.......	1	4	3	4	7	6	4	1	3
professional organizations (e.g., NEA, AFT, ASCO, DESP, NASSP, AASA)..	2	2	4	4	9	4	1	5	4
federal agencies (e.g., USOE, NIE)...	2	1	1	1	1	1	0	1	1
national information services (e.g., ERIC, NTIS).................	0	2	1	1	2	1	0	0	2
other organizations or agencies (please specify)...................	1	1	1	1	1	1	1	1	1

TABLE IX.4 QUESTION VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO (ADMINISTRATORS AND STAFF, FORM A)

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

   Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

QUESTIONNAIRE ITEMS	LEA			ISA			SEA		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
	%	%	%	%	%	%	%	%	%
subordinates in your organization....	11	6	14	6	9	11	12	9	10
fellow workers in your organization..	16	24	17	32	18	8	30	20	15
superiors in your organization.......	23	10	12	17	16	18	18	23	10
school board members................	2	3	2	0	0	1	1	1	0
colleagues in other organizations....	6	14	12	10	20	15	3	14	18
experts or authorities on the subject..............................	13	12	10	3	9	11	11	9	16
information service personnel (e.g., librarians)..................	1	4	2	1	1	1	2	5	4
other people (please specify)........	0	1	0	1	3	0	1	0	2
library in my agency................	4	3	7	3	1	4	4	1	5
university or college library........	1	1	2	1	0	1	0	1	0
university or college department.....	1	4	5	0	0	4	1	3	3
state departments of education	15	8	10	20	11	14	8	3	4
professional organizations (e.g., NEA, AASA, ASCD, AERA)........	4	7	3	3	5	4	2	4	4
federal agencies (e.g., USOE, NIE)...	1	2	2	1	0	3	3	3	4
national information services (e.g., ERIC, NTIS).................	1	1	1	1	4	3	1	4	3
other organizations or agencies (please specify)...................	2	0	1	0	1	0	1	0	0

TABLE IX.5 QUESTION VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO (HIGHER EDUCATION ADMINISTRATORS, FORM H)

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

   Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

QUESTIONNAIRE ITEMS	CHIEF ADMINISTRATORS			INSTITUTIONAL RESEARCHERS		
	1st	2nd	3rd	1st	2nd	3rd
	%	%	%	%	%	%
line administrators (e.g., vice presidents, deans, department heads)........................	69	10	4	23	18	16
staff administrators (e.g., business, student personnel, registrar)..........................	5	26	22	17	27	13
faculty (e.g., committees, individuals)..........	1	28	18	1	3	18
governing board members (e.g., regents, trustees)	0	7	0	1	3	2
colleagues in other organizations...............	5	5	18	13	12	7
experts or authorities on the subject...........	4	4	8	5	10	7
information service personnel (e.g., librarians).	0	0	3	1	3	5
other people (please specify)...................	1	0	0	1	0	0
management information system...................	5	6	12	20	3	11
university or college library...................	5	2	3	3	1	1
state department or state board of higher education................................	1	2	3	3	5	4
councils or regional boards (e.g., ACE, NEA, ECS, WICHE, SREB, NEBHE).......................	1	1	1	0	5	2
professional organizations (e.g., AAHE, AAUP, AIR, AERA)................................	0	2	1	3	0	4
federal agencies (e.g., USOE, NIE, NCES).........	0	1	2	1	1	4
national information services (e.g., ERIC, NTIS).	1	2	2	3	5	4
other organizations or agencies (please specify).	1	2	2	0	2	2

TABLE IX.6 QUESTION VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO
(HIGHER EDUCATION FACULTY, FORM E)

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

QUESTIONNAIRE ITEMS	SOCIAL SCIENTISTS			EDUCATIONAL FACULTY		
	1st	2nd	3rd	1st	2nd	3rd
	%	%	%	%	%	%
colleagues in my own department or research center	44	11	11	48	6	6
colleagues in other departments or research center in this institution	7	27	9	1	15	10
assistants or graduate students	5	10	3	0	4	2
administrators (e.g., president, provost, deans, department heads)	0	0	5	1	10	6
colleagues in other organizations	3	4	15	4	6	6
experts or authorities on the subject	5	1	18	10	6	12
librarian or other information specialists	5	4	8	5	8	13
other people (please specify)	1	1	0	1	4	2
schools or departments of education at other institutions	0	0	1	1	4	0
university or college library	16	23	11	15	15	13
state departments of education	3	0	6	3	4	6
professional educational associations (e.g., NEA, AAUP, AERA, AASA)	0	6	5	1	8	6
federal educational agencies (e.g., USOE, NIE)	1	3	3	3	1	3
other federal agencies (e.g., DoL, DoD)	3	1	0	3	1	2
national information services (e.g., ERIC, NTIS)	9	8	6	1	6	7
other organizations or agencies (please specify)	0	0	0	1	2	3

TABLE IX.7 QUESTION VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO (SCHOOL BOARD MEMBERS, FORM B)

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

   Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

QUESTIONNAIRE ITEMS	LOCAL SCHOOL BOARDS			STATE SCHOOL BOARDS		
	1st	2nd	3rd	1st	2nd	3rd
	%	%	%	%	%	%
other school board members	9	44	16	11	35	13
superintendent or staff of local school district(s)	74	10	2	16	0	13
superintendent or staff of state department of education in this state	1	5	14	35	21	0
teachers or other educators	1	9	30	3	0	16
parents or lay advisory groups	0	3	12	0	6	16
experts or authorities on the subject	6	7	7	5	21	10
legislators or other elective officials	1	3	3	0	3	10
other people (please specify)	0	2	3	3	0	0
library	0	2	1	0	0	0
other school boards	7	3	1	0	0	0
state departments of education in other states	0	3	1	5	0	3
national or state educational associations (e.g., NASBE, AASA, NEA)	2	4	7	19	9	6
federal educational agencies (e.g., USOE, NIE)	0	1	0	0	3	10
other federal or state agencies (e.g., labor, finance)	0	2	1	0	0	3
national information services (e.g., ERIC, NTIS)	0	1	1	0	0	0
other organizations or agencies (please specify)	0	2	0	3	3	0

TABLE IX.8 QUESTION VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO (LEGISLATORS AND AIDES, FORM L)

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you *typically* seek advice or information in your work?

   Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a *typical* sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

QUESTIONNAIRE ITEMS	STATE LEGISLATORS			FEDERAL LEGISLATIVE AIDES		
	1st	2nd	3rd	1st	2nd	3rd
	%	%	%	%	%	%
legislators..................................	0	6	9	0	0	8
staff members of educational committees........	13	6	13	70	8	0
other legislative staff........................	7	6	13	0	17	8
lobbyists......................................	3	10	13	0	17	8
colleagues in other organizations.............	3	13	3	0	0	17
experts or authorities on the subject..........	17	6	9	0	8	0
legislative researchers, librarian, or other information specialists.......................	13	3	13	0	0	25
other people (please specify)..................	0	3	0	0	0	0
legislative library, Library of Congress.......	0	3	3	20	25	17
university or college library..................	0	0	0	0	0	0
state departments of education.................	37	26	9	0	8	8
professional educational associations..........	3	13	16	0	0	8
federal educational agencies (e.g., USOE, NIE).	0	0	0	10	17	0
other federal agencies (e.g., DoL, DoD)........	0	0	0	0	0	0
national information services (e.g., ERIC, NTIS)	0	0	0	0	0	0
other organizations or agencies (please specify)............................	3	3	0	0	0	0

D. TYPICALITY OF THE SEQUENCE OF USE OF SOURCES

During the field interviews, some persons stated that their needs for information were so diverse that they found it difficult to describe a typical sequence of use of information sources. When the mail questionnaire was constructed, the instruction for this question asked users to describe the sequence they typically use, but added, "Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case."

To check on the degree to which the sequence indicated was typical, a second question was posed which asked respondents to classify the sequence they had just marked as: (a) very typical of the order I use, (b) somewhat similar to the order I use, or (c) I responded in terms of a recent incident. Overall, 44 percent indicated that the sequence they described was very typical, 49 percent indicated it was somewhat similar, and seven percent indicated that they responded in terms of a recent incident. The following table indicates the percentages responding to the three alternatives for each subaudience. An overall chi square test was not significant, thus indicating that the distributions of responses among the three alternatives (percentages) considered across all 14 subaudiences were not significantly different.*

Given these results, we infer that slightly less than half of educational information users (44%) tend to follow a fairly uniform pattern of search, and half of the users (49%) may alter their search sequence somewhat, depending on the

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* Chi square tests were also computed for subaudience differences within each of the six questionnaire forms. The tests for Forms P (practitioners), H (higher education chiefs and institutional researchers), and E (education faculty and social scientists) were not significant. Tests for Form A (administrators) and Form L (legislators) were significant, but only at the five percent level (and assuming simple random sampling). The difference on Form A seems to be due to the fact that relatively larger percentages of SEA staff marked that the sequence was "very typical" or that they responded in terms of a recent incident. On Form L, the difference is due to the fact that virtually all (9 of 10) federal legislative aides marked "very typical," while only 37 percent of the 27 state legislators marked this alternative.

TABLE IX.9 QUESTION VII.2: ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO: TYPICALITY OF THE SEQUENCE

The sequence of human and organizational sources I have indicated above is: (a) very typical of the order I use (b) somewhat similar to the order I use (c) I responded in terms of a recent incident	Number Responding	The Sequence Indicated Is		
		Very Typical	Somewhat Similar	Recent Incident
	N	%	%	%
PRACTITIONERS				
Teachers	201	39.8	53.7	6.5
Principals	183	38.3	54.1	7.7
Other	205	39.0	51.2	9.8
ADMINISTRATORS				
LEA Staff	113	46.0	51.3	2.7
ISA Staff	64	45.3	51.6	3.1
SEA Staff	115	53.0	37.4	9.6
HIGHER EDUCATION				
Chief Administrators	66	50.0	45.5	4.5
Institutional Researchers	53	35.8	54.7	9.4
Social Scientists	67	41.8	49.3	9.0
Educational Faculty	62	46.8	48.4	4.8
GOVERNANCE				
Local Board Members	95	51.6	42.1	6.3
State Board Members	32	50.0	43.8	6.3
State Legislators	27	37.0	59.3	3.7
Federal Legislative Aides	10	90.0	10.0	0.0
TOTAL	1,293	43.7	49.4	6.9

particular information requirement, but that, with some unusual exceptions, the individual user's search sequence is at least roughly predictable. However, there is a small fraction (7%) of users who have no single search pattern.

We are not prepared to suggest that the search patterns for this small fraction of users are unpredictable. Our guess is that many of these users employ several predictable patterns which are selectively matched with the content and character of the information need. Indeed, our field interviews lead us to suspect that virtually all educational information users employ more than one habitual pattern of search, but for many users either the information requirement circumstances are so similar or habit causes one pattern to dominate their search behavior. Note carefully that the focus in this discussion is on individual's patterns of search, not on dispositions of subaudiences which reflect averages over persons (discussed in section B). The data presented in section C clearly suggests that there are differences among persons within each subaudience, if only in the percentage of persons who report turning to a source first, second, or third.

The major impact of this section is to suggest that search sequence for individuals is predictable. Apparently a single sequence (e.g., talk to peers, check with my supervisor, try the library) provides at least a rough characterization for the vast majority (over 90% of every subaudience) and a fairly good characterization for a third to over half of the users in every one of the 14 subaudiences. Clearly there are individual differences among persons within each subaudience, and there are significant differences among the averages for subaudiences. However, these differences, although statistically significant and easily interpretable, are not large enough to obscure large, "general" patterns shared to some degree by most users. Generally, personal sources are sought out before organizational sources. Peers are virtually always the first source (beyond one's own head, files, and document collection) users turn to. Those working in elementary and secondary education organizations (schools, districts, intermediate units, state departments) tend to seek advice or information from superiors fairly early, while those in higher education rarely turn to superiors (instead, higher education users tend to turn sooner to colleagues in other organizations). Those who are actually involved in teaching (school teachers, educational faculty, and social scientists) are much quicker to turn to libraries than are others. Aside from libraries, only a small number of users in particular subaudiences are prone to turn to other organizational sources. The notable exceptions are for state and federal level governance audience users, who turn to state departments of education, and for federal legislative aides, who turn to federal educational agencies early in their search.*

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* We add one footnote to this chapter. For those interested in how many of the 16 persons and organizations listed on each of the six forms were actually ranked, study of the administrator's questionnaire (Form A) indicates that approximately half (51%) of all 16 items were ranked (ranging from 88% who ranked peers to 13% who ranked other organizations). We doubt that the average administrator would turn to as many as seven or eight sources in a particular search, but over half of this audience sampie ranked at least seven items following the instruction to mark a number "for as many as you typically use." More than ten percent of those who ranked any item continued ranking for as many as 14 of the 16 items. The results are generally similar for other forms; for instance, 49 percent of the 16 items presented to practitioners (Form P) were ranked with a range from 81 percent ranking the item teachers in my own district, to ten percent who wrote in the name of other organizations or agencies and ranked them.

CHAPTER X

QUESTION VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU

A. OVERVIEW

Near the end of the mail questionnaire, the following question was presented:

> VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU
>
> In the previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: V = Very, S = Somewhat, or M = Minimum.

There followed two lists: 13 information products and 13 information services. In the following tables means are reported for each product and service based on a scoring of 1 = Very, 2 = Somewhat, and 3 = Minimum. Consequently, low averages indicate more useful items and high averages indicate less useful items.

Tables X.1 and X.3 present the lists of products and services arranged in ascending order of scale averages (more useful to less useful). The left and right hand values indicate the range from the lowest to the highest average among the 14 subaudiences. The center value is an "equal weight" average of the 14 subaudience averages.*

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* Note that this equal weight average would be the same as the average for the total sample if there had been an equal number of usable responses for all 14 subaudiences. Since the 14 subaudiences are not equal in number of responses, the "equal weight" average is reported rather than the total sample average.

B. PRODUCT PREFERENCES

If we treat each of the 14 subaudiences with equal weight, we note that the more popular products include: Educational trends and issues, evaluation of programs or practices, solutions to common education problems, and education news and current events. Note that even the highest subaudience means for these four products are 2.00 or less, indicating that the majority of all 14 subaudiences rated these products somewhat useful or better. Among the least useful products are: Educational research methodology and lists of experts in education.

Note also that there is a substantial range from lowest to highest average on every product. As indicated in Table X.2, there are statistically significant differences among the 14 subaudience rating averages for all 13 of the products.* The results presented in Table X.1 may be misleading with respect to particular audience or subaudience preferences. It is, therefore, necessary to examine the more detailed results reported in Table X.2.

Classroom and Curriculum Materials. This item displays the widest range of subaudience rating averages of any of the 26 products and services, ranging from a highly preferred 1.15 for teachers to a unanimous "minimum" use rating average of 3.00 for federal legislators. Teachers, principals, other LEA instructional and support staff, college of education faculty, and intermediate service agency staff would most prefer information on classroom and curriculum materials. The legislative audience has minimal use for this kind of information product. The other user groups are intermediate.

Education Innovation Case Studies. This product is most preferred by education faculty, next by principals and intermediate service agency subaudiences. These results seem to confirm conventional wisdom about the location of agents of educational change. The averages for the other practitioner (teachers, other staff) and administrator (LEA and SEA) subaudiences are very close to 2.0 = Somewhat Useful. Both the legislative subaudiences and the local school board subaudience have least use for this kind of product.

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* Tests were based on chi square tests (3 response categories by 14 subaudiences). A more proper test of means (averages) would be the Analysis of Variance F-test; however, these tests have not been completed. The chi square test does have the advantage of being "non-parametric" and sensitive to any differences in subaudience distribution of responses over the three item response categories.

TABLE X.1 USEFULNESS RATING OF INFORMATION PRODUCTS
1 = Very Useful, 2 = Somewhat Useful, 3 = Minimum Use

RANK	Products	Lowest (Most Useful)	Equal Weight Average	Highest (Least Useful)
1	Educational Trends and Issues	1.36	1.51	1.71
2	Evaluation of Programs, Practices	1.25	1.54	1.69
3	Solutions to Common Educational Problems	1.34	1.59	2.00
4	Education News and Current Events	1.48	1.64	1.84
5	Education-related Legislation	1.18	1.76	2.20
6	Education-related Statistics	1.33	1.84	2.45
7	Specific Facts on Many Topics	1.67	1.93	2.14
8	Classroom and Curriculum Materials	1.15	1.97	3.00
9	Education Innovation Case Studies	1.67	1.98	2.33
10	Education Concepts and Philosophy	1.62	1.99	2.67
11	Deep Review of Selected Study Areas	1.44	2.05	2.34
12	Lists of Experts in Education	1.89	2.16	2.34
13	Education Research Methodology	1.39	2.18	2.44

Lists of Experts in Education. Although this was one of the less preferred information products, two subaudiences, state legislators and intermediate service agency staff, gave mildly positive ratings for usefulness. By contrast, all practitioner subaudiences, educational faculty, and federal legislative aides saw least use for this product.

Education-related Legislation. It is not surprising that this fairly popular information product is seen as especially useful by all governance groups. It is highly popular among state legislators. All administrators (LEA, ISA, SEA, higher education chief administrators, and school building administrators--principals) rated it fairly highly. The two subaudiences who see least use for this product are the institutional researchers and the social scientists.

Education-related Statistics. This is the favorite product of the institutional researchers. It is also seen as useful by both legislative subaudiences, chief administrators of higher education institutions, and state boards and state education agency staffs. Among those rating this type of product less useful are teachers, "other" practitioner staff, and intermediate service agency staff.

Evaluation of Programs, Practices. Next to educational trends and issues, this product is highest in overall popularity. It is the most popular of all 26 products and services among the higher education chief administrators. School principals and both local and state school members see it as a very useful product. Even groups who rated it relatively less useful (teachers, LEA administrators, state legislators) still give this product remarkably favorable ratings. The highest average rating (teachers = 1.69) is still clearly on the positive side of the three-point rating scale.

Solutions to Common Educational Problems. Third in overall popularity among products, this product is especially prized by school principals, intermediate service agency staff, higher education chief administrators, state legislators, and teachers--a remarkably diverse set of users. This product is of relatively less interest to federal legislative aides, institutional researchers, or social scientists.

Education News and Current Events. Fourth in overall popularity, this product is one of the most popular among state school boards members. Other subaudiences

TABLE X.2 QUESTION VIII: ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU - PRODUCTS

In previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: 1=Very, S=Somewhat or 3=Minimum.

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				EQUAL WT AVRG.	Chi Square P-Level
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.		
	PRODUCTS																
(1)	Classroom and Curriculum Materials	1.15	1.40	1.54	1.89	1.54	2.12	2.04	2.53	1.87	1.43	1.94	2.39	2.74	3.00	1.97	***
(2)	Education Innovation Case Studies	2.06	1.77	1.92	1.97	1.78	1.96	1.79	2.22	1.90	1.67	2.11	2.00	2.18	2.33	1.98	***
(3)	Lists of Experts in Education	2.34	2.25	2.28	2.02	1.94	2.09	2.17	2.16	2.22	2.27	2.17	2.16	1.89	2.22	2.16	**
(4)	Education-related Legislation	2.06	1.73	2.02	1.65	1.72	1.67	1.76	2.20	2.15	2.02	1.56	1.46	1.18	1.44	1.76	***
(5)	Education-related Statistics	2.45	2.05	2.29	1.92	2.11	1.77	1.59	1.33	1.82	2.03	1.91	1.70	1.41	1.40	1.84	***
(6)	Evaluation of Programs, Practices	1.69	1.40	1.58	1.66	1.59	1.55	1.25	1.56	1.58	1.61	1.49	1.46	1.64	1.56	1.54	***
(7)	Solutions to Common Educ. Problems	1.43	1.34	1.56	1.52	1.38	1.62	1.42	1.91	1.82	1.68	1.50	1.62	1.43	2.00	1.59	***
(8)	Education News and Current Events	1.65	1.58	1.72	1.51	1.50	1.71	1.66	1.74	1.84	1.60	1.68	1.48	1.70	1.56	1.64	*
(9)	Education Trends and Issues	1.62	1.43	1.63	1.50	1.51	1.58	1.38	1.56	1.60	1.44	1.71	1.36	1.48	1.40	1.51	*
(10)	Education Concepts and Philosophy	2.02	1.89	1.99	1.93	2.18	1.96	1.74	2.14	1.99	1.82	1.98	1.62	1.96	2.67	1.99	**
(11)	Education Research and Methodology	2.22	2.22	2.29	2.16	2.36	2.07	2.30	1.74	1.39	2.06	2.44	2.33	2.44	2.44	2.18	***
(12)	Deep Review of Selected Study Areas	2.15	2.15	2.18	2.07	2.34	2.06	2.00	2.06	1.44	1.84	2.31	2.24	1.85	2.00	2.05	***
(13)	Specific Facts on Many Topics	1.89	1.84	1.88	1.84	1.83	2.08	1.97	1.84	2.14	2.14	2.04	2.03	1.85	1.67	1.93	*
	N ≥	199	182	195	115	63	112	66	54	64	62	92	32	27	9		

who rate it favorably include LEA and ISA administrators, federal legislative aides, and school principals. No subaudience is particularly adverse to this type of product. The highest (least favorable rating of usefulness) averages are given by social scientists (1.84),* institutional researchers (1.74), "other" practitioners (1.72), SEA staff (1.71), and state legislators (1.70).

Educational Trends and Issues. Overall, this is the most popular type of product on the list. It is the most useful of all products for state school board members (1.36), and is rated very favorably by higher education chief administrators (1.38), federal legislative aides (1.40), school principals (1.43), education faculty (1.44), and state legislators (1.48). As in the case of news and current events, this product, educational trends and issues, receives remarkably high ratings from all subaudiences.

Educational Concepts and Philosophy. This is a for less popular product than the previous four products and ranks tenth among the 13 products in the overall (equal weight) average. However, this product is seen as relatively useful by state school board members (1.62), and higher education chief administrators (1.74). Next to information about classroom and curriculum materials, this product is seen as least useful (2.67) by federal legislators. The majority of the other subaudiences have averages relatively near the 2.0 = Somewhat Useful mark.

Education Research Methodology. This is the least popular of all products. Only social scientists (1.39) and institutional researchers (1.74) display averages under 2.0. Perhaps not surprising is the fact that governance subaudiences are among the least impressed with the usefulness of this type of product.

Deep Reviews of Selected Study Areas. Eleventh in popularity, only three subaudiences display average ratings below 2.0: social scientists (1.44), education faculty (1.84), and state legislators (1.85). Since this product type is the surrogate for several varieties of "information analysis" products, its relative lack of popularity among subaudiences other than social scientists, education faculty, and state legislators may deserve some attention.*

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* Only 12 percent of the social scientists rated this product of minimum value.

Specific Facts on Many Topics. This product is middlemost among the 13 products and displays a moderately narrow range of average ratings (from 1.67 for federal legislators to 2.14 for educational faculty). Among the subaudiences more prone to view this type of product favorably are: federal and state legislators, ISA and LEA staff, institutional researchers, and all three of the practitioner subaudiences.

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* Wanger and Henderson (1972) have established that when users are aided in responding to specific products (a color insert that displayed in miniature form examples of educational information analysis products) that, in varying degrees, information analysis products are known and read and that on the whole they are favorably received by school, school district, higher education, and SEA audiences. Thus the results of the current mail survey simply indicate that, to the extent that users can respond meaningfully to brief product type labels, "deep reviews of selected study areas" tends to be relatively less valued compared to other types of information products for most education information user target audiences.

C. SERVICE PREFERENCES

Table X.3 presents data on overall averages and highest and lowest subaudience averages for information services which are comparable to the data presented in Table X.1 for products.

Comparison of the rating averages of Tables X.1 and X.3 indicates that generally the list of information products is seen as more useful than the list of information services. Only four services receive overall average ratings lower than 2.0, while ten products have lower overall averages. Again the ranges between highest and lowest averages for subaudiences suggest that there may be significant differences among the subaudiences. The data in Table X.4 confirm this. There are statistically significant differences among the 14 subaudiences (all with probabilities beyond the .01 level and most beyond the .001 level) on all 13 services. Given these differences, we must consider each service separately. Services are discussed in the order listed in Table X.4, which is the order in which they were listed in the questionnaire.

Regularly Mailed Information of Interest. Overall, this is the most useful type of service listed. No subaudience rated it above 1.85. Subaudiences with markedly low ratings (= very useful) include: school board members (1.34), "other" practitioners (1.41). ISA (1.48) and LEA (1.48) staff, principals (1.48), and teachers (1.50). Note that these subaudiences include all the local educational agency (LEA) subaudiences, as well as the subaudience which may be closest to LEAs, the ISA administrators and staff. Even the subaudience, state legislators, who rate this service highest (1.85), give it the best average of any of the 13 services they rated. Perhaps the high ratings for this type of service explain the general popularity of newsletters among so many types of educational information users.

Quick Referral Service at Low Cost. This service and its companion, quick reference service at low cost, are respectively the third and the second most useful among the listed services. However, their overall averages (1.98 and 1.89 respectively) are much closer to the 2.0 = Somewhat Useful response category. Among the subaudiences, intermediate service agency staff and social scientists

TABLE X.3 USEFULNESS RATINGS OF INFORMATION SERVICES
1 = Very Useful, 2 = Somewhat Useful, 3 = Minimum Use

RANK	Service	Lowest (Most Useful)	Equal Weight Average	Highest (Least Useful)
1	Regularly Mailed Information of Interest	1.34	1.56	1.85
2	Quick Reference Service at Low Cost	1.51	1.89	2.29
3	Quick Referral Service at Low Cost	1.69	1.98	2.56
4	Annual Review of Education	1.66	1.99	2.24
5	Very Rapid Literature Searches	1.30	2.06	2.44
6	Help in Trying Out New Ideas	1.67	2.06	2.78
7	To-order Studies of Educational Statistics	1.60	2.14	2.56
8	Help in Interpreting Information	1.81	2.18	2.67
9	Rapid Full-document Delivery	1.73	2.19	2.44
10	Help in Forming Search Queries	2.00	2.33	2.78
11	Help in How to Use Educational Information Systems	2.13	2.37	2.89
12	Information Needs Diagrosis Service	2.11	2.38	2.58
13	Information Service Agent Visits	2.22	2.45	2.78

rate this service the most useful (both 1.69), while federal legislative aides (2.56) and state and local school board members (2.26 and 2.17) find its service of markedly lesser value.

Quick Reference Service at Low Cost. The subaudience preference pattern for this service is almost identical to the previous service. Again, social scientists (1.51) and ISA staff (1.62) are the subaudiences who find this service most useful. However, only the state school board members (2.29) rate this service much higher (less useful) than the 1.79 to 2.06 ratings given by other subaudiences.

Very Rapid Literature Searches. Fifth among the 13 services in usefulness, this service is rated as the most useful of all listed services by social scientists (1.30). Education faculty rate it 1.79. Aside from these two subaudiences, other users rate it near or over 2.0. Federal legislative aides and school board members are the least likely to see this service as useful.

Help in Forming Search Queries. This service is tenth in overall (equal weight) averages. No subaudience has an average rating under 2.0 = Somewhat Useful. Social scientists (2.00) and state legislators (2.07) tend to see the service as more useful than other groups. Federal legislative aides (2.78) give it the highest rating (minimum usefulness).

Rapid Full Document Delivery. Ranked ninth in the overall averages, this service is also seen as relatively more useful by social scientists and state legislators. Practitioner subaudiences and local board members find it relatively less useful.

Help in Interpreting Information. This service is eighth in overall averages. Local school board (1.93), state school board (1.81), and state legislator (1.96) users are the only subaudiences who rate this service below 2.0. All four of the higher education subaudiences see relatively less use for this service.

Help in Trying Out New Ideas. This is a slightly more useful service than the previous one and is sixth in order based on the overall averages. All three practitioner groups, as well as the LEA and the ISA staffs, rate this service lower than 2.0. By contrast, federal legislative aides rate it 2.78.

TABLE X.4 QUESTION VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU - SERVICES
In previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: 1=Very, 2=Somewhat or 3=Minimum.

		PRACTITIONERS			ADMINISTRATORS			HIGHER EDUCATION				GOVERNANCE				EQUAL WEIGHT AVG. TOTAL	Chi Square P-Level
Nr.	QUESTIONNAIRE ITEM	TEACH.	PRIN.	OTHER	LEA	ISA	SEA	CHIEF	INS.R.	SO.SC.	ED.F.	L.BD.	S.BD.	S.LEG.	F.LEG.		
	SERVICES																
(14)	Regularly Mailed Info. of Interest	1.50	1.48	1.41	1.48	1.43	1.59	1.62	1.67	1.57	1.57	1.69	1.34	1.85	1.67	1.56	**
(15)	Quick Referral Service at Low Cost	1.90	1.96	1.87	1.92	1.69	1.96	1.97	1.96	1.69	1.94	2.17	2.26	1.93	2.56	1.98	**
(16)	Quick Reference Service at Low Cost	1.80	1.99	1.82	1.93	1.62	1.85	2.00	1.86	1.51	1.79	2.06	2.29	1.93	2.00	1.89	***
(17)	Very Rapid Literature Searches	2.24	2.16	2.10	2.09	1.98	1.93	2.16	1.93	1.30	1.79	2.35	2.43	2.00	2.44	2.06	***
(18)	Help in Forming Search Queries	2.48	2.34	2.36	2.25	2.16	2.27	2.33	2.49	2.00	2.28	2.45	2.32	2.07	2.78	2.33	**
(19)	Rapid Full-document Delivery	2.44	2.31	2.33	2.27	2.22	2.16	2.17	2.20	1.73	2.21	2.36	2.29	1.89	2.11	2.19	***
(20)	Help in Interpreting Information	2.08	2.07	2.19	2.05	2.08	2.21	2.21	2.49	2.42	2.36	1.93	1.81	1.96	2.67	2.18	***
(21)	Help in Trying Out New Ideas	1.67	1.73	1.81	1.92	1.78	2.04	2.03	2.31	2.27	2.02	2.13	2.03	2.28	2.78	2.06	***
(22)	Information Service Agent Visits	2.31	2.32	2.32	2.32	2.22	2.49	2.66	2.65	2.55	2.62	2.33	2.36	2.41	2.78	2.45	**
(23)	Information Needs Diagnosis Service	2.30	2.20	2.22	2.34	2.11	2.38	2.58	2.52	2.48	2.42	2.31	2.50	2.48	2.44	2.38	***
(24)	Help in How to Use Ed. Info. System	2.14	2.14	2.26	2.28	2.13	2.42	2.41	2.66	2.51	2.42	2.16	2.37	2.33	2.89	2.37	***
(25)	Annual Review of Education	2.14	1.84	2.24	2.04	2.16	2.09	2.14	2.16	1.66	1.87	1.86	1.78	2.08	1.80	1.99	***
(26)	To-order Studies of Educ. Statistics	2.56	2.30	2.52	2.21	2.40	2.08	2.00	1.60	1.86	2.25	2.26	2.20	1.96	1.79	2.14	***
	N ≥	199	181	194	115	62	111	64	54	64	61	89	30	25	9		

XX If there are other kinds of information products or services which would be especially useful to you, would you please describe them?

Information Service Agent Visits. Overall, this is the least useful of all services listed. (It may also be a service which most users have no personal experience using.) Intermediate service agency staff rate this service 2.22, which is the most useful average for any of the 14 subaudiences. Note also that all LEA subaudiences (teachers, principals, "other," LEA administrators, and local board members) rate service agent visits between 2.31 and 2.33. Thus, LEA subaudiences, the most likely targets of information service agent visits, while not rating this service of much use, do see it more useful than other subaudiences. Federal legislative aides and all higher education subaudiences see this service as relatively less useful.

Information Needs Diagnosis Service. This service is perhaps even more esoteric than service agent visits and is, in fact, one of the services an information service agent might perform for a client. Overall, it ranks twelveth, just ahead of service agent visits. Again, ISA staff and all LEA subaudiences tend to see this product as more useful than other subaudiences do. Note that with the exception of local board members, all other governance and all higher education subaudiences tend to rate this service as markedly less useful than any of the practitioner or administrator subaudiences.

Help in How to Use Educational Information Systems. Overall, this service ranks eleventh. Only service agent visits and needs diagnosis service are seen as being less useful. In terms of relative ratings among subaudiences, ISA staff (2.13), teachers (2.14), principals (2.14) and local board members (2.16) are the most favorable prospective users of this service; while federal legislative aides (2.89), institutional researchers (2.66), and education faculty (2.51) rate this service of less use.

Annual Review of Education. This item is misplaced and belongs in the product list. Perhaps because it is a product, it enjoys a markedly higher overall rating (ranking fourth among the services, it would tie with education concepts and philosophy on the product list). Six subaudiences rated this item less than 2.0 (More Useful). They are: social scientists (1.66), state board members (1.78), federal legislative aides (1.80), school principals (1.84), local board members (1.86), and education faculty (1.87). The subaudience that finds this item least useful is the "other" practitioner staff (2.24).

To Order Studies of Educational Statistics. Among the information services, this item is middlemost. It is also one on which there is a wide range of subaudience ratings averages. Institutional researchers (1.60), federal legislative aides (1.79), social scientists (1.86), and state legislators (1.96), all tend to rate this service on the more useful side of the three point scale, while teachers (2.56), "other" staff (2.52), and ISA staff (2.40) see distinctly less use for this service.

D. USER SUBAUDIENCES

We must wait for a multiple discriminant function analysis to accomplish a systematic statistical comparison among subaudiences, taking into account the intercorrelations among the many products and services However, several patterns may be worth comment.

School Practice Oriented Groups. In general it seems that the ISA staff has usefulness preferences which are close to those of teachers, principals, and "other" practitioner staff. High preferences among these groups are: classroom and curriculum materials, solutions to common educational problems, regularly mailed information of interest, educational trends and issues, and educational news and current events. They are also more receptive to receiving help in trying out new ideas and, at least relative to other audiences, see more use in information agent service visits. Like nearly all other groups, they see much use in information on the evaluation of educational programs and practices. They are much less interested in educational statistics, or lists of experts in education (except for ISA staff).

Administrators and Staffs of Education Agencies. The administration audiences (LEA, ISA, SEA) and the higher education audiences (chiefs, institutional researchers, social scientists, and education faculty) tend to mirror the practitioners to some degree in their preferences for more popular items including: regularly mailed information, educational trends and issues, education news and current events, solutions to common educational problems, and evaluation of programs and practices. However, these groups place relatively more value than practitioners and other LEA subaudiences on education-related statistics and education-related legislation, and less emphasis on classroom and curriculum materials.

Higher Education Chief Administrators. Among the four higher education users, each of the four subaudiences displays a somewhat different pattern of preferences. Generally the chief administrators tend to give usefulness ratings that are similar to LEA, ISA, and SEA staffs. Chief administrators in higher education institutions consider information products concerned with evaluation of educational programs, educational trends and issues, and solutions to education problems to be especially useful. Compared to other subaudiences they see more use in innovation case studies.

Institutional Researchers. This subaudience sees little use for curriculum materials, innovation case studies, education-related legislation, service agent visits, or help in information needs diagnosis; however, they are the prime audience for education-related statistics or to-order studies of education statistics.

Social Scientists. Especially the campus-based, non-student AERA members in RDD&E are distinguished from virtually every other user group in their positive usefulness ratings of information products concerning education research methodology, deep reviews of selected study areas, annual reviews of education; and for a number of services including: very rapid literature searches, quick reference service, quick referral service, and rapid full document delivery. In general, these preferences confirm what would be expected of social scientists. The point to note is that the social scientists are almost alone among the 14 subaudiences in their strong preferences for these kinds of products and services. To the extent that educational information systems have used "R&D" or "scientific" information systems as models in their design assumptions, they may serve social scientists well, but at the possible cost of failing to consider the relative product and service preferences of virtually every other class of education information user.

Education Faculty. In some respects the faculty of colleges and schools of education are most similar to social scientists, however, they also exhibit several differences including: educational faculty see more value in classroom and curriculum materials, innovation case studies, education news and current events, education trends and issues, education concepts and philosophy, and help in trying out new ideas. Conversely, education faculty are less prone than social scientists to see as much use in: research methodology, deep reviews, quick referral or reference services, rapid literature searches, or help in forming search queries. Despite the fact that faculty see less value than social scientists in this array of types of "research" and "information system" products and services, the education faculty tend to see more use in these products and services than virtually any of the other subaudiences.

Local School Boards. The local school board members tend to mirror the concerns of the other LEA (practice-oriented) audiences. They especially value the usefulness of: evaluation of programs and practices, solutions to common education problems, education news and current events, regularly mailed information, education trends and issues, and annual reviews of education. Along with state boards and state legislators, they are somewhat more prone to see value in help in interpreting information than do other subaudiences.

State Board Members. This group exhibits a preference pattern somewhat similar to local boards (and also to SEA staff). State board members are remarkable in terms of the relatively high use value (along with higher education chiefs) they place on information concerning educational trends and issues, and on regularly mailed information. Compared to local boards, state board members see relatively less use in information about classroom and curriculum materials, in quick reference service, in information needs diagnosis service, and in help in how to use information services; but relatively greater use for education-related statistics, education news and current events, educational trends and issues, education concepts and philosophies, and for regularly mailed information.

Legislators. The two legislative subaudiences tend to be set apart from all other subaudiences in terms of their low use value placed on information about classroom and curriculum materials, and on innovation case studies. Federal legislative aides are even further removed from most subaudiences in their low use of educational concepts and philosophy.

We note that none of the governance audience (boards and legislators) place high use value on education research methodology, but that all value education-related statistics and education-related legislation.

Federal Legislative Aides. Compared to state legislators, this group sees markedly less value in information on solutions to common education problems, and less use in lists of experts in education, information about education concepts and philosophies, and most of the "bibliographic" information services (i.e., quick referral, rapid searches, help in forming search queries, information needs diagnosis) and also in information service agent visits, help in trying out new ideas, or help in interpreting information. There are two possible reasons that seem plausible for these differences between federal aides and state legislators. First, the federal legislative aides tend to be "specialists" in educational legislation and in the research of educational information needed for legislation, while the majority of state legislators are elected officials, some of whom are part time legislators and most of whom must deal with many other types of legislative content areas than education exclusively. Second, the federal legislative aides have the extraordinary information resources of the Library of Congress to use as information intermediaries and synthesizers, whereas state legislators are, with some minor exceptions, much less "information-rich" in their research resources.*

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* Irwin Feller, _et al_ (1975) provide extensive documentation for this last observation, based on an intensive eight state survey of _Sources and Uses of Scientific and Technological Information in State Legislature_ (University Park, PA: Center for the Study of Science Policy, Institute for Research on Human Resources, The Pennsylvania State University, June 1975).

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APPENDIX A: MAIL SURVEY SAMPLING DESIGN

Table A.1 presents estimated population sizes for the 14 subaudiences to be included in the mail survey. Sources for the estimates are listed in the NIE RFP. Most estimates are made from program records of the National Center for Educational Statistics, the National Educational Association, or the National Institute of Education. Post-secondary education estimates are from records of the American Association of Colleges for Teacher Education, American Educational Research Association, Association for Institutional Researchers, and American Council on Education.

Limited resources restricted the total planned sample to 2,575 persons. The proposed sample sizes indicated in Table A.1 represent an allocation which aimed for a minimum sample size of at least 100 (with the one exception of subaudience 3.4, U.S. Congressional Aides). The School Practitioner subaudiences, where the estimated populations are relatively much larger and possibly more diverse in character, were allocated larger sample sizes; but, given the gross differences in estimated population sizes, it is obvious that sampling of subaudiences is highly disproportional. This is not a problem because the major interest in this study is not in making estimates for the entire market but for various segments of the market. Reasonably uniform confidence in estimates for each subaudience is desired. The somewhat larger samples for school practitioners may permit further partition of these groups in the analysis (e.g., elementary vs. secondary teachers) and also tends to compensate for the larger element variances in the school district cluster samples.

Multiple strategies were employed to construct frames and to sample the 14 subaudiences listed in Table A.1. For most subaudiences, lists of persons that would constitute adequate sampling frames did not exist.

For local school agency (LEA) subaudiences, including all three in the elementary and secondary school practitioner audience, as well as school district staff and local boards of education, cluster sampling appeared to be the most feasible

TABLE A.1 TYPOLOGY OF SELECTED EDUCATION INFORMATION AUDIENCES AND PROPOSED SAMPLE SIZE FOR MAIL SURVEY

Type of Position	Planned Sample	Estimated Population Size
1. **Practitioners**		
1.1 Teachers	400	2,180,000
1.2 Principals	350	93,500
1.3 Other Instructional Staff	408	109,000
Total	(1,158)	
2. **Administrators**		
2.1 School District Staff	242	65,000
2.2 Intermediate Agency Staff	100	3,400
2.3 State Education Agency Staff	200	9,500
Total	(542)	
3. **Governance**		
3.1 State School Board Members	100	523
3.2 Local School Board Members	230	112,000
3.3 State Legislators and Aides	120	500
3.4 U. S. Congressional Aides	25	75
Total	(475)	
4. **Higher Education**		
4.1 Faculty of Schools of Education	100	23,000
4.2 Social Science RDD&E Staff	100	6,000
4.3 Institutional Researchers	100	915
4.4 College Presidents and Chief Administrators	100	2,500 (institutions)
Total	(400)	
TOTAL	2,575	

approach. Unfortunately, the school system cluster size can be subject to unduly large variation if it is based on a random selection of school systems which are known to differ greatly in size. To achieve some control, selection with probabilities proportional to size (PPS) was needed for three reasons: first, budget limitations imposed an upper limit on the sample size; second, contractual obligations to achieve a minimum number of useful responses imposed a lower limit on the actual sample selected; and third, selection with PPS affords increased statistical efficiency.

The sampling procedure used (for large and medium sized school systems) was that of stratified cluster sampling with school districts as the primary sampling units (PSUs). Using the latest (1973-74) School Universe Tape available from the National Center for Educational Statistics, PSUs were stratified by a measure of size* and then were sampled randomly, with replacement, with paired selections per size stratum. Persons (excepting school board members) were subsampled without replacement within each PSU, with a compensating sampling fraction based on the measure of size. Specifically, the local education agencies (LEAs) listed in the School Universe Tape were ordered by size, as measured by student membership (average daily attendance). The plan called for the ordered lists to be divided into strata with equal numbers of students, and a pair of LEAs to be randomly selected from each stratum. This procedure, described by Kish (1965, p. 223 ff.), applies two random numbers to accumulated totals of student enrollment in each stratum. LEAs are taken into the sample if their enrollment accumulation interval includes a selected random number.

Given the extreme variability in size of school systems, this general procedure was modified as follows: (a) Beginning with the largest school system, 18 strata, each including 2 million students, were formed. A pair of schools was randomly drawn from each stratum (plus six "alternate" districts). These systems were designated "large school systems" (enrollments from over one million to approximately 2,500); (b) Six strata, each including one million students, were formed. Again pairs of districts and replacements were randomly drawn from each stratum. These systems were designated "medium size school systems" (enrollments from approximately 2,500 to 1,000); (c) Below the 1,000 enrollment size, we encountered a difficult problem in using the "measure of size" selection process because the school systems become so small that, aside from teachers, there may be only one or two persons in each LEA staff subaudience. If only one subaudience were sampled, there would be a simple solution, i.e., sample "small size systems" at the overall subaudience sampling fraction and take everyone in the system. Unfortunately, the original sample sizes produced four different sampling fractions. A compromise was found by noting that if (1) the other instructional staff (originally designated as "supervisors of instruction") were expanded to include a broader array of support staff and (2) the planned sample sizes were modified, a common overall sampling fraction could be estabished for Principals and Vice Principals, Other Instructional (and support) Staff, and Central Office Administrators. Consequently, the sampling plan was modified so that the remaining small systems were sampled at a common overall sampling fraction. One problem remained since if all teachers in selected small size school systems were also taken into the sample they would be substantially over-represented. Using NCES and NEA data, it was determined that if teachers were taken in number equal to 40 percent of the small systems total for the three positions, the desired overall teacher sampling fraction would be maintained. To summarize, the following modifications in the sampling plan were made:

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* Since non-response is likely to be high in a mail survey (and we had data from several information needs surveys indicating that non-response will vary by subaudiences and by the size of the school system), stratifying by size makes it more reasonable to accept those responding as an approximation to each size stratum. An even more important reason for stratification by size is that the size of school systems is so skewed that a random sample of school systems would yield a larger number of small systems (which are far more numerous but represent only a small proportion of educational practitioners) and a small number of larger systems (which are few in numbers but represent the majority of practitioner information users).

1. The subaudience definition for "supervisors of instruction" was revised to include non-administrational professional support staff, and it was labelled "Other Instructional (and support) Staff."
2. The sample sizes for principals, other staff, and school district staff were revised to those indicated in Table A.1.
3. Using the latest available NCES tape, the PPS selection procedure outlined above was followed down until cumulative enrollment equalled 36,000,000, forming 18 strata of 2,000,000 enrollment, with two districts (and alternatives) selected per stratum.
4. Six more strata of 1,000,000 enrollment each were formed, down to a cumulative enrollment of 42,000,000. Again two districts (and alternatives) were selected per stratum.

5. For the remaining districts (approximately 9,400), the "measure of size" procedure was abandoned. A random number was assigned to each district and a fraction (1/267.5) of the remaining districts were selected.
6. The original intent to pre-stratify school systems by census region was abandoned to simplify the computer programming.

For these subaudiences, FWL provided SDC with a list of LEA's and alternates. SDC then wrote to each of the selected districts (the superintendents) and requested lists by name and address of teachers, principals, other instruction and support staff, school district staff, and members of the board of education. The sampling frame for each of these subaudiences was prepared by SDC by compiling the lists returned by the sampled LEAs. (Some districts would not release personnel lists, but agreed to pull a random sample following project instructions.) If a district refused completely, and if time and individual state sampling procedures permitted, SDC replaced the district with an alternate district in the same stratum.

The number of persons in each subaudience to select from each district was established by computing four "sampling fractions" for each school system selected. These sampling fractions were multiplied by the current LEA (1975-76) enrollment and rounded to the nearest whole number to find the number of persons to be selected.*

Since school board size is not proportional to school system size, but in fact tends to be approximately the same regardless of size of school system, a constant number was used to sample school board members. Note that the effect of this sampling method is to bias the sample of LEA school board members in the direction "weighting" the LEA school board sub-samples by the numbers of students they are responsible for. Note that if it were possible to simple random sample all US public school board members, we would encounter a problem very similar to that of simple random sampling of school systems; namely that approximately half of the sample would be drawn from systems representing less than seven percent of the students. Please keep this point in mind: While LEA staff (teachers, principals, administrators, and other staff) are in fact relatively unbiased random samples

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* (see footnote on following page)

Footnote from preceding page:

The basis for the method is described in Leslie Kish, Survey Sampling, Wiley, 1965, pp. 222-223. For large size systems the teacher fraction (TF) = 8.88 ÷ NCES 1973-74 enrollment expressed as average daily membership (ADM). For medium size districts, the fraction was halved, TF = 4.44 ÷ ADM. The principal fractions (PF) were PF = 7.76 ÷ ADM; PF = 3.88 ÷ ADM. Other staff fractions, OF = 9.05 ÷ ADM; OF = 4.525 ÷ ADM. Administrative staff fraction, AF = 5.36 ÷ ADM; AF = 2.68/ADM. Several comments may be helpful to those unaquainted with this method. First, note that if a school system has not changed enrollment size between 1973-74 and 1975-76, the numbers to be sampled would equal the constants shown above rounded to whole numbers. That is, for a large school system: 9 teachers, 8 principals, 9 other staff, and 5 administrative staff. For a medium size system: 4 teachers, 4 principals, 5 other staff, and 3 administrative staff. Because some school system enrollments changed over the two year period, the use of the sampling fractions permitted a proportionate adjustment in the numbers to be selected from that system. Second, it should be noted that the number to be selected from a particular subaudience tends to remain constant across school systems of the same general size (e.g., approximately 8 to 10 teachers for large systems and 4 to 5 teachers for medium size systems). Recall that the chances of a system being selected are directly proportional to its pupil enrollment but the chances of a staff member being selected are inversely proportional to pupil enrollment. For example, very large size systems such as Chicago or New York City have a very high probability of being chosen, but only 8 to 10 of its very many teachers would be subsampled. On the other hand, there are approximately 2,000 school systems with enrollments between 2,500 to 5,000. Since only a few of these systems are selected, each district has a very small chance of being selected, but, if selected, the much smaller staff within these districts have a much higher probability of being selected--e.g., 4 principals out of a 2,500 student system may mean that perhaps half of the system's principals would be sampled. This last point is also the explanation for separating systems into large and medium sizes. The sample sizes used for the large systems were desired, but could not be used with districts with a few thousand, since, except for teachers, there was a chance of specifying a required number of staff that exceeded the actual number employed. And for this reason the PPS selection method was abandoned entirely for systems under approximately 2,500 enrollment. The final note is that despite of this somewhat complicated selection process the overall effect is to provide an approximately equal chance of selection, using strictly random selection procedures, for virtually every public school staff members in a designated subaudience. Please note that there are two possibly biasing elements. One, school systems formed since 1973-74 were not considered. Two, if a state or school system refused to participate, the system, of course, could not be sampled. When time permitted, a replacement system was solicited.

of all professionals employed in U.S. public schools in 1975-76, the sample of LEA school board members is biased, and in effect is "weighted" in terms of the size of the school systems the board members are responsible for. When considering the problem of estimating educational information needs, this bias is a desirable feature. We note that this method of selection of board members also has another advantage, namely that the data on five different types of LEA educational information users can be "nested" within each sampled LEA, thereby affording opportunity to perform secondary analyses on the data base regarding between and within LEA system effects.

The three subaudiences associated with state level agencies are: (2.3) State Education Agency Staff, (3.3) State Legislators and Aides, and (3.1) State Boards of Education. Frames for the three state level subaudiences were based on a random sample of states from each of the four geographic regions. The states which were random-selected by FWL and approved by NIE are:

West

Alaska -- (4)*
Washington -- (5)
Oregon -- (8)
Montana -- (6)
Utah -- (5)
Wyoming -- alternate

North Central

North Dakota -- (3)
South Dakota -- (4)
Kansas -- (7)
Iowa -- (11)
Michigan -- (15)
Missouri -- alternate

North East

New Hampshire -- (3)
Connecticut -- (9)
New York -- (41)
Pennsylvania -- (27)
Rhode Island -- (5)
New Jersey -- alternate

South

Louisiana -- (9)
Mississippi -- (8)
Alabama -- (11)
South Carolina -- (11)
Virginia -- (13)
Kentucky -- alternate

---

* Numbers in parentheses beside the states listed above indicate the number of persons that would be selected based on the 1969 Directory data.

For the State Education Agency Staff (2.3), SDC prepared an updated list (based on the latest available Education Directory: State Governments) of staff for each of the twenty states. A sampling fraction was determined by dividing the total number of persons on the list into 200, which is the desired sample size.

This fraction was applied to the count for each of the twenty states to find the nearest whole number representing the number of persons to be selected from each SEA. Persons were selected strictly randomly from the lists without regard to job title or position.

For State School Boards (3.1) and State Legislators or Aides (3.3), SDC sent a letter to the chief state school officer of the sampled states. The letter described the nature of the survey and requested a list, by name and address, of state school board members and staff of education committees of the state legislature. The frames for these two subaudiences were prepared by SDC by compiling the lists returned. Five (5) school board members were chosen randomly from the lists of the boards for 19 of the 20 states (only 3 were chosen from Mississippi since that was all they had). Six (6) staff members of education committees (or aides to legislators on educational committees) were selected randomly from the lists for each of the 20 states (6 x 20 = 120).

There are only two remaining subaudiences among the first three audiences: 2.2, Intermediate Agency Staff and 3.4, U.S. Congressional Aides. A different approach was taken for these groups. In the case of the Intermediate Agency Staff there were two reasons why: first, only 21 states had intermediate units, and second, a recent (March 1975) list of intermediate unit staff existed which was employed directly as a sampling frame of persons. We sampled randomly from this list to secure a list of addressees. The mailing for this subaudience contained a request that if the addressee has left the intermediate unit, the questionnaire be answered by his/her replacement or by the person on the staff most nearly performing the job of the person addressed.

To identify staff for the U.S. Congressional Aides subaudience, the NIE Office of Legislative Affairs obtained lists of committee staff from the House Education and Labor Committee; the Labor, Health, Education, and Welfare Subcommittee of the House Appropriations Committee; the Senate Labor and Public Welfare Committee of the Labor and Health, Education and Welfare Agencies; and the Related Agencies Subcommittee of the Senate Appropriations Committee. These four lists of committee staff provided a frame for sampling aides to federal legislators. In the case of this subaudience, judgmental selection (by the NIE Office of Legislative Affairs) was used instead of random sampling.

The frames for the post-secondary education subaudiences (faculty of schools of education, social science researchers, institutional researchers, and presidents and administrators) were each built in a different way.

NIE has sponsored another project specifically targeted at the knowledge production and utilization (KPU) capacity of colleges, schools, and departments of education (principal investigators are Egon Guba and David Clark at Indiana University). To afford comparability between the two studies, and because the Guba and Clark analysis is the most current and rigorous examination of these education faculties from a KPU perspective, we employed their classification. The faculty universe includes all NCATE (or better) institutions and represents a population of approximately 30,500 staff. Institutions were stratified by the Guba and Clark classification and selected with probabilities proportional to estimated faculty size. Subsamples (ranging in size from two to five) were designated to maintain a uniform overall sampling fraction.

Social science RDD&E staff located at post-secondary institutions were defined as all non-student American Educational Research Association members who have identified a higher education institution as their principal place of employment and who have identified research, development, dissemination, or evaluation, or the management of educational RDD&E as their primary or secondary work. The frame was created from a membership computer tape which AERA constructed. It is noted that AERA membership and the availability of the membership information listed does constrain the definition of this population. However, this seemed to be the most reasonable and feasible approach. It may be assumed safely that AERA is the largest and most inclusive association of social science researchers with interest in education. Efforts to include additional names (e.g., psychologists belonging to the APA division of educational psychology, but not belonging to

AERA) could have been undertaken, but with added cost and the problem of bias since not all social science associations could provide names for only members at institutions of higher education with interest in educational research. This was not done. Alternately, one could have confined the definition to only those researchers who have been funded by NIE or other sponsors. Again there are significant problems associated with the expense of constructing an adequate frame and possibly with the bias of focusing primarily on "principal investigators," so this was not done either.

A similar sampling logic was used in selecting a sample for institutional researchers. In this case, we used the most recent available list (Fall, 1974) of names of U.S. full members of the Association of Institutional Researchers. Our argument is that this list tends to identify those institutional researchers who have interests in this field sufficient for them to belong to its primary professional association.

Subaudience 4.4, Presidents and Administrators, is concerned with those persons who must deal with institutional level educational policy and management. In smaller institutions this may be the president or his/her assistant. In larger institutions, this may be the provost, or vice-president or dean for academic affairs. The Cargenie publication A Classification of Institutions of Higher Education (1973) provides a convenient list of eligible institutions classified by type (doctoral granting, comprehensive, liberal arts, two-year, specialized) and identified by size of student enrollment. We constructed a stratified random sample with stratification based on the Carnegie classification (and indirectly on the size of institutional enrollment). Institutions were selected by PPS, using total student enrollment as the measure of size. Directories and catalogs were used to identify the name and title of the most appropriate respondent for each selected institution.

TABLE A.2 SUMMARY OF SAMPLING METHODS AND RESULTS

Sampling Method	Subaudience	Estimated Population Size	Planned Sample Size	Planned Sampling Fraction	Actual Mail-Out	Usable Returns	Return Rate	Effective Sampling Fraction	Multiplier* (reciprocal of sampling fraction)
CLUSTER Stratified cluster sampling with PSU probability proportional to school enrollment. Constant overall sampling fraction for teachers, principals, other instruction staff, and school district staff. Constant number for school board members.	1.1 Teachers	2,180,000	400	.00018	405	205	51%	.000094	10,634
	1.2 Principals	93,500	350	.00374	336	187	56%	.002000	500
	1.3 Other Instructional Staff	109,000	408	.00374	397	210	53%	.001927	519
	2.1 School District Staff	65,000	242	.00372	239	119	50%	.001831	546
	3.2 Local School Boards	112,000	230	.00200	345	97	28%	.000866	1,155
***									
Five states chosen randomly in each of the four census regions. Constant number for each state for boards and legislative aides. Constant fraction for state staff.	2.3 State Education Agency Staff	9,500	200	.0211	220	117	53%	.012316	81
	3.1 State School Boards	523	100	.1912	98	34	35%	.065010	15
	3.3 State Legislative Aides	500	120	.2400	120	28	23%	.056000	18
***									
Stratified cluster sampling of faculties with stratification based on size and type of faculty	4.1 Faculty of Schools of Education	30,500	100	.0033	127	64	50%	.002098	477
STRATIFIED Stratified random sample with stratification based on Cargenie classification and size of enrollment.	4.4 Presidents and Chief Administrators	2,500 (institutions)	100	.0400	100	69	69%	.002760	36 (institutions)
SIMPLE RANDOM Simple random sample based on NCES list with replacement by person filling position.	2.2 Intermediate Agency Staff	3,400	100	.0294	120	65	54%	.019118	52
***									
Simple random sample of AERA membership in RDD&E on campus.	4.2 Social Sciences RDD&E Staff	6,000	100	.0167	100	68	68%	.011333	88
***									
Simple random sample of U.S. full members in Association of Institutional Researchers.	4.3 Institutional Researchers	915	100	.1093	100	55	55%	.060109	17
NON-RANDOM, JUDGMENTAL Selected by NIE.	3.4 U.S. Congressional Aides	75	25	.3333	41	10	24%	.133333	7.5

* "Multiplier" indicates approximately how many persons in the estimated population are represented by each usable return.

APPENDIX B. MAIL SURVEY FORMS

The entire questionnaire is presented for Form A. Only pages 1 and 6 appear for the other 5 forms since the questionnaire differed only in Part I (page 1) and Part VII (page 6).

A

O.M.B. NUMBER 51-S75054
APPROVAL EXPIRES 12/31/75

SURVEY OF INFORMATION NEEDS IN EDUCATION

__1___ __2___ __3___ __4___ __5___ __6___ __7___
__8___ __9___ __10___ __11___ __12___________ __14___
__13___ _______ ___ _____ _____ _____ _______
1· 2 3 4 5. 6 7 8 9. 10 11 12 13 14

(Sponsored by U.S. Department of Health, Education and Welfare: National Institute of Education)

I. ABOUT YOURSELF AND YOUR WORK

1. Name ______________________________

2. Title ______________________________

3. In your opinion, how adequate is the information available to educational agency staffs (in school district central offices, intermediate units, and state educational agencies) about educational issues, problems, methods, and practices: (Please check one box ☑ in each column.)

	Amount	Quality
Very adequate?	☐	☐
Somewhat adequate?	☐	☐
Somewhat inadequate?	☐	☐
Very inadequate?	☐	☐

4. Needs for information are affected by the nature of the work one does. To help us identify the general nature of your work, please consider each of the following types of activities. Are there any significant activities that need to be added to the list? If so, please write in a brief description for each activity on the lines provided.

Then, for each activity, decide how significant a part of your work it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor which you think is relevant. (Please check one box in each row.)

		Degree of Importance		
	Work Activity In Education	High	Moderate	Low
A.	Determining educational needs	☐	☐	☐
B.	Establishing educational goals and objectives	☐	☐	☐
C.	Evaluating educational programs	☐	☐	☐
D.	Curriculum planning and development	☐	☐	☐
E.	Developing educational programs or materials	☐	☐	☐
F.	Appraising teacher or administrator effectiveness	☐	☐	☐
G.	Providing pre- or inservice training	☐	☐	☐
H.	Providing pupil personnel services (records, guidance, counseling, etc.)	☐	☐	☐
I.	Developing or negotiating teacher or administrator salaries, or other personnel matters	☐	☐	☐
J.	Financial plans, budgets, or other financial matters	☐	☐	☐
K.	Dealing with legal problems or educational legislation	☐	☐	☐
L.	Planning acquisition or maintenance of facilities and equipment	☐	☐	☐
M.	Planning or maintaining support services (e.g., transportation, food, library)	☐	☐	☐
N.	Performing administrative liaison functions	☐	☐	☐
O.	Working with, informing, securing support of community leaders, legislators, others	☐	☐	☐
P.	Consulting or advising other educators on educational matters	☐	☐	☐
Q.	Conducting studies and investigations	☐	☐	☐
R.	Other ______________________	☐	☐	☐
S.	Other ______________________	☐	☐	☐
T.	Other ______________________	☐	☐	☐

5. Now, consider each of the above work activities in terms of your need for information. Please circle the capital letter (A, B, C, etc) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

II. ABOUT THE INFORMATION SOURCES YOU USE IN YOUR MOST IMPORTANT WORK ACTIVITIES

1. Users tend to turn to different information sources depending on the nature of their work. Please refer to the list of activities you rated on the opposite page and write in the spaces below the letters of the two activities which you consider to be the most important in your work.

Now please rate the following sources of information in terms of how often you use the source to obtain information in connection with these two activities. (Please check one box for your most important work activity and one box for your next most important work activity in each row.)

		My most important work activity is (letter): ____ In connection with this activity, I use this source:			My next most important activity is (letter): ____ In connection with this activity, I use this source:		
		Often	Sometimes	Rarely	Often	Sometimes	Rarely
1.	Workshops, seminars, graduate courses	☐	☐	☐	☐	☐	☐
2.	Telephone calls to people in other organizations	☐	☐	☐	☐	☐	☐
3.	Memos and correspondence	☐	☐	☐	☐	☐	☐
4.	Abstracts, indexes, bibliographies	☐	☐	☐	☐	☐	☐
5.	Library or resource center in my own organization	☐	☐	☐	☐	☐	☐
6.	Educational newsletters, bulletins, announcements	☐	☐	☐	☐	☐	☐
7.	Educational journals	☐	☐	☐	☐	☐	☐
8.	Telephone calls to people in my own organization	☐	☐	☐	☐	☐	☐
9.	Technical reports, government publications	☐	☐	☐	☐	☐	☐
10.	Other libraries, resource centers or information services	☐	☐	☐	☐	☐	☐
11.	Curriculum materials	☐	☐	☐	☐	☐	☐
12.	Face-to-face discussion or conferences with people in my own organization	☐	☐	☐	☐	☐	☐
13.	Personal library	☐	☐	☐	☐	☐	☐
14.	Conventions, professional association meetings	☐	☐	☐	☐	☐	☐
15.	Notes and files in my own office	☐	☐	☐	☐	☐	☐
16.	Office, department or organization files	☐	☐	☐	☐	☐	☐
17.	Face-to-face discussion or conferences with people in other organizations	☐	☐	☐	☐	☐	☐
18.	Textbooks, reference books	☐	☐	☐	☐	☐	☐
19.	Other sources (please specify) ____	☐	☐	☐	☐	☐	☐
20.	____	☐	☐	☐	☐	☐	☐

2. When you need information for your job, sometimes there is a delay between when you start to look for it and when you actually find/receive it. The amount of time you can allow will depend on the situation, but considering the same two most important work activities you have just rated, how much time can you usually allow to elapse after realizing the need for information? (Check one.)

A few hours .... ☐
One day .... ☐
2-3 days .... ☐
About a week ... ☐
About 2 weeks ... ☐
More than 2 weeks ... ☐

PLEASE TURN PAGE

III. ABOUT THE USEFULNESS OF THE INFORMATION SOURCES YOU USE

1. On the previous page you told us how frequently you used a number of information sources in connection with two important work activities. Now please consider all the activities you perform and rate this same list of sources in terms of their usefulness in providing you with the information you need for any part of your work. (Please check one box in each row.)

		I Rarely or Never Use This Source	I Use This Source And It Is: Highly Useful	Moderately Useful	Of Minor Use
1.	Workshops, seminars, graduate courses	☐	☐	☐	☐
2.	Telephone calls to people in other organizations	☐	☐	☐	☐
3.	Memos and correspondence	☐	☐	☐	☐
4.	Abstracts, indexes, bibliographies	☐	☐	☐	☐
5.	Library or resource center in my own organization	☐	☐	☐	☐
6.	Educational newsletters, bulletins, announcements	☐	☐	☐	☐
7.	Educational journals	☐	☐	☐	☐
8.	Telephone calls to people in my own organization	☐	☐	☐	☐
9.	Technical reports, government publications	☐	☐	☐	☐
10.	Other libraries, resource centers or information services	☐	☐	☐	☐
11.	Curriculum materials	☐	☐	☐	☐
12.	Face-to-face discussion or conferences with people in my own organization	☐	☐	☐	☐
13.	Personal library	☐	☐	☐	☐
14.	Conventions, professional association meetings	☐	☐	☐	☐
15.	Notes and files in my own office	☐	☐	☐	☐
16.	Office department or organization files	☐	☐	☐	☐
17.	Face-to-face discussion or conferences with people in other organizations	☐	☐	☐	☐
18.	Textbooks, reference books	☐	☐	☐	☐
19.	Other sources (please specify) ______________	☐	☐	☐	☐
20.	______________	☐	☐	☐	☐

2. Please identify (by name, title, or description) the single most useful source of information in your work.

____

____

____

IV. ABOUT THE MOST IMPORTANT CHARACTERISTICS OF THE EDUCATION INFORMATION SOURCES YOU PREFER

1. Users have various reasons for preferring the information sources they like to use. Please refer to the numbered list of sources on the opposite page and note the number (1 – 20) of the two sources you most prefer to use. Please mark these two numbers in the boxes at the top of the two columns on the right.

Now, for each of these two sources, please rank the reasons listed below in order of their importance to your preference for the source.

Assign the number (1) to the most important reason

Assign the number (2) to the next most important reason, etc.

Continue ranking for as many reasons as you think apply.

	Source #	Source #
	RANK	RANK
This source:		
is easy to use		
is near at-hand or easily accessible		
is fast in responding		
is free or inexpensive		
is usually available when I need it		
is likely to have the information I want		
is complete, comprehensive		
is authoritative, accurate, reliable		
is objective, impartial, not biased		
is up-to-date		
is responsive to my particular problem or question		
keeps me aware of new developments		
leads me to other sources		
provides for new ideas or different viewpoints		
provides opportunity for discussion or exchange of ideas		

2. How would you describe your degree of isolation from information sources you would like to have available to you? (Check one.)

Not isolated, I have ready access to any source I need . . . . ☐

Somewhat isolated, I may have to spend a little time or effort to obtain the information I need. . . . . ☐

Seriously isolated, I sometimes forgo using information sources that I would like to use . . . . ☐

Almost completely isolated, I frequently can not get access to the sources I would like to use . . . . ☐

3. How often do educators or other professionals come to you for information, or do you pass information on to others relating to educational matters? (Check one.)

Several times daily . . . ☐ At least daily . . . ☐ At least weekly . . . ☐

At least monthly . . . ☐ Less often . . . ☐

PLEASE TURN PAGE

V. ABOUT YOUR PURPOSES FOR SEEKING INFORMATION

Users need information for many different purposes. For each purpose listed below, please indicate your degree of need for, and your satisfaction with currently available sources of information by checking one of the boxes for need and one of the boxes for satisfaction associated with each purpose.

PURPOSE	NEED My need for this kind of information is: (Check one)			SATISFACTION My current sources for this kind of information are: (Check one)		
To help me to:	Great	Moderate	Small	Satisfactory	Partly Satisfactory	Unsatisfactory
Keep aware of developments and activities in education	☐	☐	☐	☐	☐	☐
Keep aware of who is knowledgeable in a subject or problem area	☐	☐	☐	☐	☐	☐
Identify new sources of assistance for improving my work	☐	☐	☐	☐	☐	☐
Identify new educational programs, materials, methods or procedures	☐	☐	☐	☐	☐	☐
Evaluate educational practices or products	☐	☐	☐	☐	☐	☐
Develop alternative approaches to solving problems arising in my work	☐	☐	☐	☐	☐	☐
Find answers to specific questions arising in relation to my work	☐	☐	☐	☐	☐	☐
Locate information to provide to others	☐	☐	☐			
Prepare reports, articles, or speeches	☐	☐	☐	☐	☐	☐
Other purposes (please specify)						
____________________	☐	☐	☐	☐	☐	☐
____________________	☐	☐	☐	☐	☐	☐

VI. ABOUT YOUR PROBLEMS IN ACQUIRING AND USING EDUCATIONAL INFORMATION

With respect to all the tasks you have worked on over the last year, did you have any unusually serious difficulty locating, obtaining or using information which you critically needed in your work in education?

No ☐ : (Go to Part VII, Page 6.)   Yes ☐ : (Please answer Questions 1 and 2 below.)

1. Would you explain the difficulty?

____

____

____

2. Can you offer a possible solution to the problem?

____

____

____

VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

☐ subordinates in your organization
☐ fellow workers in your organization
☐ superiors in your organization
☐ school board members
☐ colleagues in other organizations
☐ experts or authorities on the subject
☐ information service personnel (e.g., librarians)
☐ other people (please specify)

____

☐ library in my agency
☐ university or college library
☐ university or college department
☐ state departments of education
☐ professional organizations (e.g., NEA, AASA, ASCD, AERA)
☐ federal agencies (e.g., USOE, NIE)
☐ national information services (e.g., ERIC, NTIS)
☐ other organizations or agencies (please specify)

____

2. The sequence of human and organizational sources I have indicated above is (check one box):

(a) very typical of the order I use .... ☐
(b) somewhat similar to the order I use ...... ☐
(c) I responded in terms of a recent incident .. ☐

VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU

In previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: V-Very, S-Somewhat or M-Minimum.

CONTENT AREAS			
Classroom and curriculum materials	V ☐	S ☐	M ☐
Education innovation case studies	V ☐	S ☐	M ☐
Lists of experts in education	V ☐	S ☐	M ☐
Education-related legislation	V ☐	S ☐	M ☐
Education-related statistics	V ☐	S ☐	M ☐
Evaluation of programs, practices	V ☐	S ☐	M ☐
Solutions to common educ. problems	V ☐	S ☐	M ☐
Education news and current events	V ☐	S ☐	M ☐
Education trends and issues	V ☐	S ☐	M ☐
Education concepts and philosophy	V ☐	S ☐	M ☐
Education research methodology	V ☐	S ☐	M ☐
Deep review of selected study areas	V ☐	S ☐	M ☐
Specific facts on many topics	V ☐	S ☐	M ☐

PRODUCTS AND SERVICES			
Regularly mailed info. of interest	V ☐	S ☐	M ☐
Quick referral service at low cost	V ☐	S ☐	M ☐
Quick reference service at low cost	V ☐	S ☐	M ☐
Very rapid literature searches	V ☐	S ☐	M ☐
Help in forming search queries	V ☐	S ☐	M ☐
Rapid full-document delivery	V ☐	S ☐	M ☐
Help in interpreting information	V ☐	S ☐	M ☐
Help in trying out new ideas	V ☐	S ☐	M ☐
Information service agent visits	V ☐	S ☐	M ☐
Information needs diagnosis service	V ☐	S ☐	M ☐
Help in how to use ed. info. system	V ☐	S ☐	M ☐
Annual review of education	V ☐	S ☐	M ☐
Tailored studies of educ. statistics	V ☐	S ☐	M ☐

If there is some other form of information which would be especially useful to you, would you please describe it?

____

____

IX. STATISTICAL DATA

Your answers to these questions will help us compare our sample to national population data.

1. How old are you?

Under 25 years . . . . ☐
25 to 34 years . . . . ☐
35 to 44 years . . . . ☐
45 to 54 years . . . . ☐
55 years or older . . . . . . ☐

2. What is your highest earned degree?

High School . . . . ☐
Associate's . . . . ☐
Bachelor's . . . . ☐
Master's . . . . ☐
Doctor's . . . . ☐

NO MORE QUESTIONS. THANK YOU FOR YOUR COOPERATION.

IF YOU WISH, PLEASE USE THE SPACE BELOW TO TELL US ABOUT ANY IDEAS YOU MAY HAVE THAT WOULD MAKE EDUCATIONAL INFORMATION MORE ACCESSIBLE OR USEFUL TO YOU.

Page 1

I. ABOUT YOURSELF AND YOUR WORK

1. Name ______________________________

2. Title ______________________________

This questionnaire is concerned with the information needs of state and local school board members. Most persons who serve on school boards must deal with many subject areas other than education, but for the purposes of this survey, please confine your answers to your needs for information relating directly to educational matters.

3. Please rate the following broad subject areas in terms of your need for educational information in each area. (Please check one box ☑ in each row.)

	My Need for Information in This Area is:		
Content Areas	Great	Moderate	Little
Budget and Finance (e.g., fiscal policies, salaries)	☐	☐	☐
Classroom Subjects (e.g., textbooks, curriculum)	☐	☐	☐
Instructional Methods (e.g., open classrooms, peer tutoring)	☐	☐	☐
Community/Public Interaction (e.g., community programs, parent support or resistance)	☐	☐	☐
Government Programs and Education Legislation (e.g., Head Start, state aid)	☐	☐	☐
Management (e.g., policies, practices)	☐	☐	☐
Personnel Policies and Operations (e.g., certification, tenure, contracts)	☐	☐	☐
Educational Facilities and Operations (e.g., attendance, equipment, use)	☐	☐	☐
Student Data (e.g., characteristics, achievement)	☐	☐	☐
Special Programs (e.g., compensatory education, vocational education)	☐	☐	☐
Other (please specify) ______________________			

4. To help us understand the general nature of your work in education, please consider each of the following types of activities. Are there any significant activities that need to be added to the list? If so, please write in a brief description for each additional activity on the lines provided.

Then, for each activity, decide how significant a part of your work relating to education it represents. In making this decision consider its importance, frequency of occurrence, or any other factor you think is relevant. (Please check one box in each row.)

		Degree of Importance		
	Work Activity in Education	High	Moderate	Low
A.	Studying educational issues to determine needs, problems, policy alternatives	☐	☐	☐
B.	Holding public hearings on educational matters	☐	☐	☐
C.	Confering with special interest or citizen's groups on educational matters	☐	☐	☐
D.	Studying specific board agenda items for intent, impact, fiscal or legal implications	☐	☐	☐
E.	Establishing personnel policy or reviewing decisions to hire, transfer, or terminate	☐	☐	☐
F.	Establishing policy for management of ongoing functions of school systems	☐	☐	☐
G.	Monitoring and advising on operation of school systems	☐	☐	☐
H.	Reviewing educational budgets or financial plans	☐	☐	☐
I.	Evaluating the worth or merit of educational programs	☐	☐	☐
J.	Analyzing the effect of or making recommendations regarding educational legislation	☐	☐	☐
K.	Preparing articles, speeches, reports on educational topics	☐	☐	☐
L.	Responding to constituents requests for information on educational topics	☐	☐	☐
M.	Handling special problems or board assignments relating to education	☐	☐	☐
N.	Other ______________________	☐	☐	☐
O.	Other ______________________	☐	☐	☐

5. Now, consider each of the above work activities in terms of your need for information. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

VII. ABOUT THE PEOPLE AND ORGANIZATION YOU TURN TO

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

- ☐ other school board members
- ☐ superintendent or staff of local school district(s)
- ☐ superintendent or staff of state department of education in this state
- ☐ teachers or other educators
- ☐ parents or lay advisory groups
- ☐ experts or authorities on the subject
- ☐ legislators or other elective officials
- ☐ other people (please specify) ______________________

- ☐ library
- ☐ other school boards
- ☐ state departments of education in other states
- ☐ national or state educational associations (e.g., NASBE, AASA, NEA)
- ☐ federal educational agencies (e.g., USOE, NIE)
- ☐ other federal or state agencies (e.g., labor, finance)
- ☐ national information services (e.g., ERIC, NTIS)
- ☐ other organizations or agencies (please specify) ______________________

2. The sequence of human and organizational sources I have indicated above is (check one box):

(a) very typical of the order I use . . . . ☐

(b) somewhat similar to the order I use . . . . ☐

(c) I responded in terms of a recent incident . . . ☐

VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU

In previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: V-Very, S-Somewhat or M-Minimum.

CONTENT AREAS				PRODUCTS AND SERVICES			
Classroom and curriculum materials	V ☐	S ☐	M ☐	Regularly mailed info. of interest	V ☐	S ☐	M ☐
Education innovation case studies	V ☐	S ☐	M ☐	Quick referral service at low cost	V ☐	S ☐	M ☐
Lists of experts in education	V ☐	S ☐	M ☐	Quick reference service at low cost	V ☐	S ☐	M ☐
Education-related legislation	V ☐	S ☐	M ☐	Very rapid literature searches	V ☐	S ☐	M ☐
Education-related statistics	V ☐	S ☐	M ☐	Help in forming search queries	V ☐	S ☐	M ☐
Evaluation of programs, practices	V ☐	S ☐	M ☐	Rapid full-document delivery	V ☐	S ☐	M ☐
Solutions to common educ. problems	V ☐	S ☐	M ☐	Help in interpreting information	V ☐	S ☐	M ☐
Education news and current events	V ☐	S ☐	M ☐	Help in trying out new ideas	V ☐	S ☐	M ☐
Education trends and issues	V ☐	S ☐	M ☐	Information service agent visits	V ☐	S ☐	M ☐
Education concepts and philosophy	V ☐	S ☐	M ☐	Information needs diagnosis service	V ☐	S ☐	M ☐
Education research methodology	V ☐	S ☐	M ☐	Help in how to use ed. info. system	V ☐	S ☐	M ☐
Deep review of selected study areas	V ☐	S ☐	M ☐	Annual review of education	V ☐	S ☐	M ☐
Specific facts on many topics	V ☐	S ☐	M ☐	Tailored studies of educ. statistics	V ☐	S ☐	M ☐

If there is some other form of information which would be especially useful to you, would you please describe it?

____

____

PLEASE TURN PAGE

I. ABOUT YOURSELF AND YOUR WORK

1. Name ______________________________

2. Title ______________________________

This questionnaire is concerned with the information needs of educational faculty and educational researchers. Some persons performing these roles must deal with subject areas other than education, but for the purposes of this survey, please confine your answers to your needs for information relating directly to educational matters.

3. Please rate the following broad subject areas in terms of your need for educational information in each area. (Please check one box ☑ in each row.)

	My Need for Information in This Area is:		
Content Areas	Great	Moderate	Little
Administrative Agencies (e.g., school boards, districts)	☐	☐	☐
Educational Finance (e.g., fiscal policies, salaries)	☐	☐	☐
Classroom Subjects (e.g., textbooks, curriculum)	☐	☐	☐
Instructional Methods (e.g., open education, individualized instruction) . . .	☐	☐	☐
Government Programs and Education Legislation	☐	☐	☐
Management and Administration (e.g., policies, practices)	☐	☐	☐
Personnel Policies and Operations (e.g., certification, tenure)	☐	☐	☐
Educational Facilities and Operations (e.g., attendance, equipment, use) . .	☐	☐	☐
Student Data (e.g., characteristics, achievement)	☐	☐	☐
Educational Research, Development and Evaluation	☐	☐	☐
Other (please specify) ______________________________	☐	☐	☐

4. To help us understand the general nature of your work in education, please consider each of the following types of activities. Are there any significant activities that need to be added to the list? If so, please write in a brief description for each additional activity on the lines provided.

Then, for each activity, decide how significant a part of your work relating to education it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor you think is relevant. (Please check one box in each row.)

	Degree of Importance		
Work Activity in Education	High	Moderate	Low
A. Teaching or counseling students	☐	☐	☐
B. Preparing courses, lectures, etc.	☐	☐	☐
C. Conducting research studies	☐	☐	☐
D. Conducting evaluation studies	☐	☐	☐
E. Developing educational materials or programs	☐	☐	☐
F. Preparing reports, articles or speeches	☐	☐	☐
G. Consulting, advising, or providing technical assistance	☐	☐	☐
H. Managing R&D programs or projects	☐	☐	☐
I. Managing or administering academic programs	☐	☐	☐
J. Working on academic committees, councils, etc.	☐	☐	☐
K. Preparing proposals for funded projects	☐	☐	☐
L. Working with local schools or communities regarding educational problems or projects	☐	☐	☐
M. Other ______________________________	☐	☐	☐
N. Other ______________________________	☐	☐	☐
O. Other ______________________________	☐	☐	☐

5. Now, consider each of the above work activities in terms of your need for information. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

☐ colleagues in my own department or research center

☐ colleagues in other departments or research center at this institution

☐ assistants or graduate students

☐ administrators (e.g., president, provost, deans, department heads)

☐ colleagues in other organizations

☐ experts or authorities on the subject

☐ librarian or other information specialists

☐ other people (please specify)

____

☐ schools or departments of education at other institutions

☐ university or college library

☐ state departments of education

☐ professional educational associations (e.g., NEA, AAUP, AERA, AASA)

☐ federal educational agencies (e.g., USOE, NIE)

☐ other federal agencies (e.g., DoL, DoD)

☐ national information services (e.g., ERIC, NTIS)

☐ other organizations or agencies (please specify)

____

2. The sequence of human and organizational sources I have indicated above is (check one box):

(a) very typical of the order I use .... ☐

(b) somewhat similar to the order I use ...... ☐

(c) I responded in terms of a recent incident .. ☐

VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU

In previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: V-Very, S-Somewhat or M-Minimum.

CONTENT AREAS				PRODUCTS AND SERVICES			
Classroom and curriculum materials	V ☐	S ☐	M ☐	Regularly mailed info. of interest	V ☐	S ☐	M ☐
Education innovation case studies	V ☐	S ☐	M ☐	Quick referral service at low cost	V ☐	S ☐	M ☐
Lists of experts in education	V ☐	S ☐	M ☐	Quick reference service at low cost	V ☐	S ☐	M ☐
Education-related legislation	V ☐	S ☐	M ☐	Very rapid literature searches	V ☐	S ☐	M ☐
Education-related statistics	V ☐	S ☐	M ☐	Help in forming search queries	V ☐	S ☐	M ☐
Evaluation of programs, practices	V ☐	S ☐	M ☐	Rapid full-document delivery	V ☐	S ☐	M ☐
Solutions to common educ. problems	V ☐	S ☐	M ☐	Help in interpreting information	V ☐	S ☐	M ☐
Education news and current events	V ☐	S ☐	M ☐	Help in trying out new ideas	V ☐	S ☐	M ☐
Education trends and issues	V ☐	S ☐	M ☐	Information service agent visits	V ☐	S ☐	M ☐
Education concepts and philosophy	V ☐	S ☐	M ☐	Information needs diagnosis service	V ☐	S ☐	M ☐
Education research methodology	V ☐	S ☐	M ☐	Help in how to use ed. info. system	V ☐	S ☐	M ☐
Deep review of selected study areas	V ☐	S ☐	M ☐	Annual review of education	V ☐	S ☐	M ☐
Specific facts on many topics	V ☐	S ☐	M ☐	Tailored studies of educ. statistics	V ☐	S ☐	M ☐

If there is some other form of information which would be especially useful to you, would you please describe it?

____

____

I. ABOUT YOURSELF AND YOUR WORK

1. Name ______________________________

2. Title ______________________________

This questionnaire is concerned with the information needs of presidents, chief administrators and institutional researchers in higher education institutions.

3. Please rate the following broad subject areas in terms of your need for educational information in each area. (Please check one box ☑ in each row.)

	My Need for Information in This Area is:		
Content Areas	Great	Moderate	Little
Academic Programs (e.g., curriculum, programs of study, instruction methods)	☐	☐	☐
Other Institutional Programs (e.g., research, public service)	☐	☐	☐
Students (e.g., characteristics, enrollment, achievement)	☐	☐	☐
Staff (e.g., characteristics, assignments, salary, work loads)	☐	☐	☐
Finance (e.g., income, expenditures, budgets)	☐	☐	☐
Facilities and Equipment (e.g., sites, buildings, utilization of space)	☐	☐	☐
Characteristics of other Institutions (e.g., programs, staff, finances)	☐	☐	☐
Government Programs and Educational Legislation	☐	☐	☐

4. To help us understand the general nature of your work in education, please consider each of the following types of activities. Are there any significant activities that need to be added to the list? If so, please write in a brief description for each additional activity on the lines provided.

Then, for each activity, decide how significant a part of your work relating to education it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor you think is relevant. (Please check one box in each row.)

		Degree of Importance		
	Work Activity in Education	High	Moderate	Low
A.	Establishing institutional goals and objectives	☐	☐	☐
B.	Program planning and development (academic, research, service)	☐	☐	☐
C.	Reviewing or evaluating programs	☐	☐	☐
D.	Developing personnel policies, negotiating salaries or other personnel matters	☐	☐	☐
E.	Developing budgets or financial plans	☐	☐	☐
F.	Securing and establishing sources of funding	☐	☐	☐
G.	Planning or managing allocation and utilization of resources	☐	☐	☐
H.	Planning or managing facilities and equipment	☐	☐	☐
I.	Planning or managing support services (e.g., housing, transportation, library)	☐	☐	☐
J.	Developing and administering admissions and student personnel policies, including recruitment, testing, records, counseling, placement, etc.	☐	☐	☐
K.	Making enrollment projections, describing student body characteristics	☐	☐	☐
L.	Conducting studies or surveys of current status of institutional programs or activities	☐	☐	☐
M.	Long-range institutional planning	☐	☐	☐
N.	Working with, informing, securing support of institutional administrators and staff	☐	☐	☐
O.	Working with, informing, securing support of alumni, community leaders, legislators, others	☐	☐	☐
P.	Consulting or advising other educators on education matters	☐	☐	☐
Q.	Other ______________________	☐	☐	☐
R.	Other ______________________	☐	☐	☐

5. Now, consider each of the above work activities in terms of your need for information. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

☐ line administrators (e.g., vice presidents, deans department heads)
☐ staff administrators (e.g., business, student personnel, registrar)
☐ faculty (e.g., committees, individuals)
☐ governing board members (e.g., regents, trustees)
☐ colleagues in other organizations
☐ experts or authorities on the subject
☐ information service personnel (e.g., librarians)
☐ other people (please specify)
☐ ____________________

☐ management information system
☐ university or college library
☐ state department or state board of higher education
☐ councils or regional boards (e.g., ACE, NEA, ECS, WICHE, SREB, NEBHE)
☐ professional organizations (e.g., AAHE, AAUP, AIR, AERA)
☐ federal agencies (e.g., USOE, NIE, NCES)
☐ national information services (e.g., ERIC, NTIS)
☐ other organizations or agencies (please specify)
☐ ____________________

2. The sequence of human and organizational sources I have indicated above is (check one box):

(a) very typical of the order I use .... ☐
(b) somewhat similar to the order I use .... ☐
(c) I responded in terms of a recent incident ... ☐

VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU

In previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: V-Very, S-Somewhat or M-Minimum.

CONTENT AREAS			
Classroom and curriculum materials	V ☐	S ☐	M ☐
Education innovation case studies	V ☐	S ☐	M ☐
Lists of experts in education	V ☐	S ☐	M ☐
Education-related legislation	V ☐	S ☐	M ☐
Education-related statistics	V ☐	S ☐	M ☐
Evaluation of programs, practices	V ☐	S ☐	M ☐
Solutions to common educ. problems	V ☐	S ☐	M ☐
Education news and current events	V ☐	S ☐	M ☐
Education trends and issues	V ☐	S ☐	M ☐
Education concepts and philosophy	V ☐	S ☐	M ☐
Education research methodology	V ☐	S ☐	M ☐
Deep review of selected study areas	V ☐	S ☐	M ☐
Specific facts on many topics	V ☐	S ☐	M ☐

PRODUCTS AND SERVICES			
Regularly mailed info. of interest	V ☐	S ☐	M ☐
Quick referral service at low cost	V ☐	S ☐	M ☐
Quick reference service at low cost	V ☐	S ☐	M ☐
Very rapid literature searches	V ☐	S ☐	M ☐
Help in forming search queries	V ☐	S ☐	M ☐
Rapid full-document delivery	V ☐	S ☐	M ☐
Help in interpreting information	V ☐	S ☐	M ☐
Help in trying out new ideas	V ☐	S ☐	M ☐
Information service agent visits	V ☐	S ☐	M ☐
Information needs diagnosis service	V ☐	S ☐	M ☐
Help in how to use ed. info. system	V ☐	S ☐	M ☐
Annual review of education	V ☐	S ☐	M ☐
Tailored studies of educ. statistics	V ☐	S ☐	M ☐

If there is some other form of information which would be especially useful to you, would you please describe it?

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PLEASE TURN PAGE

I. ABOUT YOURSELF AND YOUR WORK

1. Name ______________________________

2. Title ______________________________

This questionnaire is concerned with the information needs of legislators and legislative aides who are involved with state or federal educational legislation. Most persons performing these roles must deal with many subject areas other than education, but for the purposes of this survey, please confine your answers to your needs for information relating directly to educational matters.

3. Please rate the following broad subject areas in terms of your need for educational information in each area. (Please check one box ☑ in each row.)

	My Need for Information in This Area is:		
Content Areas	Great	Moderate	Little
Administrative Agencies (e.g., school boards, districts)	☐	☐	☐
Budget and Finance (e.g., fiscal policies, salaries)	☐	☐	☐
Classroom Subjects (e.g., textbooks, curriculum)	☐	☐	☐
Community Reactions (e.g., support, resistance)	☐	☐	☐
Government Programs and Education Legislation	☐	☐	☐
Management (e.g., policies, practices)	☐	☐	☐
Personnel Policies and Operations (e.g., certification, tenure)	☐	☐	☐
Educational Facilities and Operations (e.g., attendance, equipment, use)	☐	☐	☐
Student Data (e.g., characteristics, achievement)	☐	☐	☐
Special Programs (e.g., compensatory education)	☐	☐	☐
Other (please specify) ______________	☐	☐	☐

4. To help us understand the general nature of your work in education, please consider each of the following types of activities. Are there any significant activities that need to be added to the list? If so, please write in a brief description for each additional activity on the lines provided.

Then, for each activity, decide how significant a part of your work relating to education it represents. In making this decision, consider its importance, frequency of occurrence, or any other factor you think is relevant. (Please check one box in each row.)

		Degree of Importance		
	Work Activity in Education	High	Moderate	Low
A.	Researching educational issues to determine needs, problems, policy alternatives	☐	☐	☐
B.	Holding public hearings on educational matters	☐	☐	☐
C.	Conferring with special interest groups or lobbyists on educational matters	☐	☐	☐
D.	Analyzing educational legislation (current, pending or proposed) for intent, impact, effect on various groups	☐	☐	☐
E.	Analyzing educational legislation for costs or other fiscal or legal implications	☐	☐	☐
F.	Reviewing educational budgets or financial plans	☐	☐	☐
G.	Evaluating the worth or merit of alternative educational programs	☐	☐	☐
H.	Making recommendations regarding educational legislation	☐	☐	☐
I.	Drafting or revising educational legislation	☐	☐	☐
J.	Preparing articles, speeches, reports on educational topics	☐	☐	☐
K.	Responding to legislators or other staff members requests for information on educational topics	☐	☐	☐
L.	Responding to constituents requests for information on educational topics	☐	☐	☐
M.	Handling special problems or assignments relating to education	☐	☐	☐
N.	Other ______________	☐	☐	☐
O.	Other ______________	☐	☐	☐

5. Now, consider each of the above work activities in terms of your need for information. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

VII. ABOUT THE PEOPLE AND ORGANIZATIONS YOU TURN TO

1. Besides the technical sources of information listed earlier, educators often avail themselves of human and organizational sources. When you are confronted with a specific problem, from which of the following human and organizational sources would you typically seek advice or information in your work?

Please mark the first source you would usually turn to with a 1 in the box beside the source. Mark the second with a 2, and so on for as many sources as you typically use. (Note, if your work is such that it is hard to describe a typical sequence of use of sources, please recall a recent incident where it was important for you to obtain information and answer the question in terms of what you did in this particular case.)

☐ legislators
☐ staff members of educational committees
☐ other legislative staff
☐ lobbyists
☐ colleagues in other organizations
☐ experts or authorities on the subject
☐ legislative researchers, librarian or other information specialists
☐ other people (please specify)

____

☐ legislative library, Library of Congress
☐ university or college library
☐ state departments of education
☐ professional educational associations
☐ federal educational agencies (e.g., USOE, NIE)
☐ other federal agencies (e.g., DoL, DoD)
☐ national information services (e.g., ERIC, NTIS)
☐ other organizations or agencies (please specify)

____

2. The sequence of human and organizational sources I have indicated above is (check one box):

(a) very typical of the order I use . . . . ☐
(b) somewhat similar to the order I use . . . . ☐
(c) I responded in terms of a recent incident . . . ☐

VIII. ABOUT THE INFORMATION PRODUCTS AND SERVICES THAT WOULD BE MOST USEFUL TO YOU

In previous sections we have asked about your information needs, resources, and satisfactions. We would also like to know about your ideal preferences; that is, regardless of whether or not they are currently available to you, what information contents, products, and services would be useful to you? For each item below, please check the box indicating its usefulness: V-Very, S-Somewhat or M-Minimum.

CONTENT AREAS				PRODUCTS AND SERVICES			
Classroom and curriculum materials	V ☐	S ☐	M ☐	Regularly mailed info. of interest	V ☐	S ☐	M ☐
Education innovation case studies	V ☐	S ☐	M ☐	Quick referral service at low cost	V ☐	S ☐	M ☐
Lists of experts in education	V ☐	S ☐	M ☐	Quick reference service at low cost	V ☐	S ☐	M ☐
Education-related legislation	V ☐	S ☐	M ☐	Very rapid literature searches	V ☐	S ☐	M ☐
Education-related statistics	V ☐	S ☐	M ☐	Help in forming search queries	V ☐	S ☐	M ☐
Evaluation of programs, practices	V ☐	S ☐	M ☐	Rapid full-document delivery	V ☐	S ☐	M ☐
Solutions to common educ. problems	V ☐	S ☐	M ☐	Help in interpreting information	V ☐	S ☐	M ☐
Education news and current events	V ☐	S ☐	M ☐	Help in trying out new ideas	V ☐	S ☐	M ☐
Education trends and issues	V ☐	S ☐	M ☐	Information service agent visits	V ☐	S ☐	M ☐
Education concepts and philosophy	V ☐	S ☐	M ☐	Information needs diagnosis service	V ☐	S ☐	M ☐
Education research methodology	V ☐	S ☐	M ☐	Help in how to use ed. info. system	V ☐	S ☐	M ☐
Deep review of selected study areas	V ☐	S ☐	M ☐	Annual review of education	V ☐	S ☐	M ☐
Specific facts on many topics	V ☐	S ☐	M ☐	Tailored studies of educ. statistics	V ☐	S ☐	M ☐

If there is some other form of information which would be especially useful to you, would you please describe it?

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PLEASE TURN PAGE

I. ABOUT YOURSELF AND YOUR WORK

1. Name ________________________________

2. Title ________________________________

3. In your opinion, is the information available to practitioners closest to the classroom (teachers, principals, supervisors of instruction, etc.) about educational issues, problems, methods and practices:

(Please check one box ☑ .)

	Amount	Quality
Very adequate?	☐	☐
Somewhat adequate? . .	☐	☐
Somewhat inadequate? . .	☐	☐
Very inadequate?	☐	☐

4. Practitioners' needs for information are affected by the nature of their work. To help us identify the general nature of your work in education, please consider each of the following activities. Are there any significant activities which should be added to the list? If so, please write in a brief description for each additional activity on the lines provided. For each activity, decide how significant a part of your work it represents. In making this decision, please consider its importance, frequency of occurrence, or any other factor which you think is relevant. (Please check one box in each row.)

	Work Activity In Education	Degree of Importance in My Work		
		High	Moderate	Low
A.	Teaching or counseling students	☐	☐	☐
B.	Handling disciplinary or other student problems . .	☐	☐	☐
C.	Sponsoring or supervising extracurricular activities	☐	☐	☐
D.	Preparing lessons	☐	☐	☐
E.	Curriculum planning	☐	☐	☐
F.	Selecting instructional materials	☐	☐	☐
G.	Looking for new methods	☐	☐	☐
H.	Determining educational needs	☐	☐	☐
I.	Establishing educational objectives	☐	☐	☐
J.	Evaluating program outcomes	☐	☐	☐
K.	Acquiring new knowledge or skills	☐	☐	☐
L.	Scheduling (space, students, staff)	☐	☐	☐
M.	Preparing school budgets or financial plans	☐	☐	☐
N.	Performing other administrative functions	☐	☐	☐
O.	Working with parents or community	☐	☐	☐
P.	Working with school boards	☐	☐	☐
Q.	Conducting studies or investigations	☐	☐	☐
R.	Providing pre- or inservice teacher training	☐	☐	☐
S.	Developing educational materials	☐	☐	☐
T.	Consulting or advising others on educational matters	☐	☐	☐
U.	Other ____________________	☐	☐	☐
V.	Other ____________________	☐	☐	☐
W.	Other ____________________	☐	☐	☐

5. Now, consider each of the above work activities in terms of your need for information. Please circle the capital letter (A, B, C, etc.) appearing immediately before the activity if you made any kind of special effort during the past year to find information relating to that activity. If you did not have to make a special effort to find information, leave the letter unmarked.

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☐ teachers in my own district
☐ principals in my own district
☐ other personnel in my own district
☐ parents or members of the community
☐ colleagues in other organizations
☐ experts or authorities on the subject
☐ information service personnel (e.g., librarians, information specialists)
☐ other people (please specify)

☐ school library
☐ university or college library
☐ university or college department
☐ state department of education
☐ professional organizations (e.g., NEA, AFT, ASCO, DESP, NASSP, AASA)
☐ federal agencies (e.g., USOE, NIE)
☐ national information services (e.g., ERIC, NTIS)
☐ other organizations or agencies (please specify)

2. The sequence of human and organizational sources I have indicated above is (check one box):

(a) very typical of the order I use . . . . ☐
(b) somewhat similar to the order I use . . . . ☐
(c) I responded in terms of a recent incident . . . ☐

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CONTENT AREAS			
Classroom and Curriculum Materials	V ☐	S ☐	M ☐
Education Innovation Case Studies	V ☐	S ☐	M ☐
Lists of Experts in Education	V ☐	S ☐	M ☐
Education-related Legislation	V ☐	S ☐	M ☐
Education-related Statistics	V ☐	S ☐	M ☐
Evaluation of programs, practices	V ☐	S ☐	M ☐
Solutions to common Educ. Problems	V ☐	S ☐	M ☐
Education News and Current Events	V ☐	S ☐	M ☐
Educational Trends and Issues	V ☐	S ☐	M ☐
Education Concepts and Philosophy	V ☐	S ☐	M ☐
Education Research Methodology	V ☐	S ☐	M ☐
Deep review of selected study areas	V ☐	S ☐	M ☐
Specific Facts on Many Topics	V ☐	S ☐	M ☐

PRODUCTS AND SERVICES			
Regularly Mailed Info. of Interest	V ☐	S ☐	M ☐
Quick Referral Service at Low Cost	V ☐	S ☐	M ☐
Quick Reference Service at Low Cost	V ☐	S ☐	M ☐
Very Rapid Literature Searches	V ☐	S ☐	M ☐
Help in forming search Queries	V ☐	S ☐	M ☐
Rapid full-document delivery	V ☐	S ☐	M ☐
Help in interpreting Information	V ☐	S ☐	M ☐
Help in trying Out New Ideas	V ☐	S ☐	M ☐
Information Service Agent Visits	V ☐	S ☐	M ☐
Information Needs Diagnosis Service	V ☐	S ☐	M ☐
Help in how to use Ed. Info. System	V ☐	S ☐	M ☐
Annual Review of Education	V ☐	S ☐	M ☐
To-order studies of Educ. Statistics	V ☐	S ☐	M ☐

If there are other kinds of information products or services which would be especially useful to you, would you please describe them?

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